IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

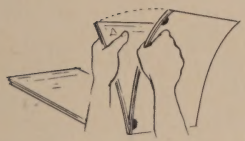
TO OPEN ***JUST DO THIS:***

1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.



3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 529 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ MAY 1961

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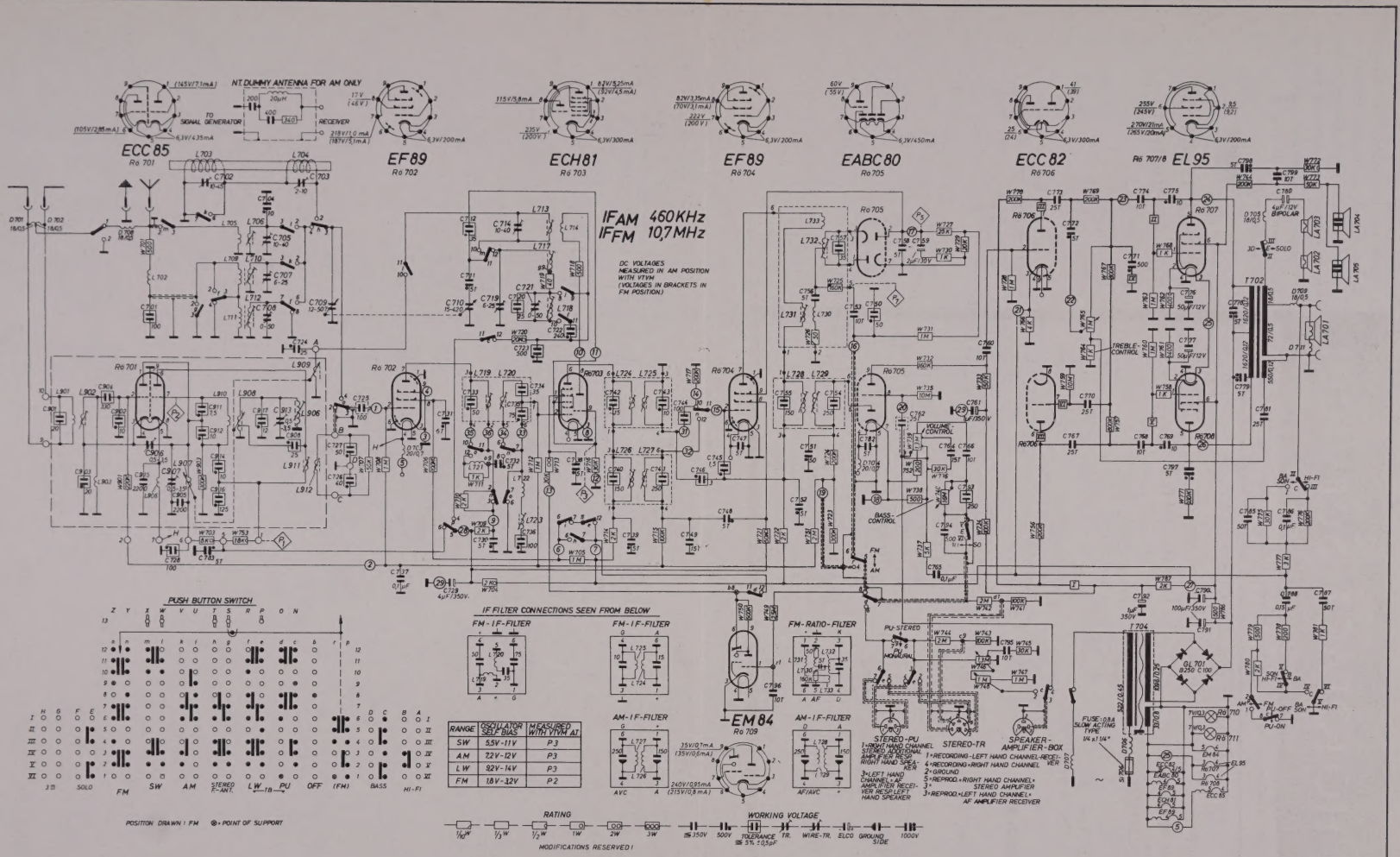
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

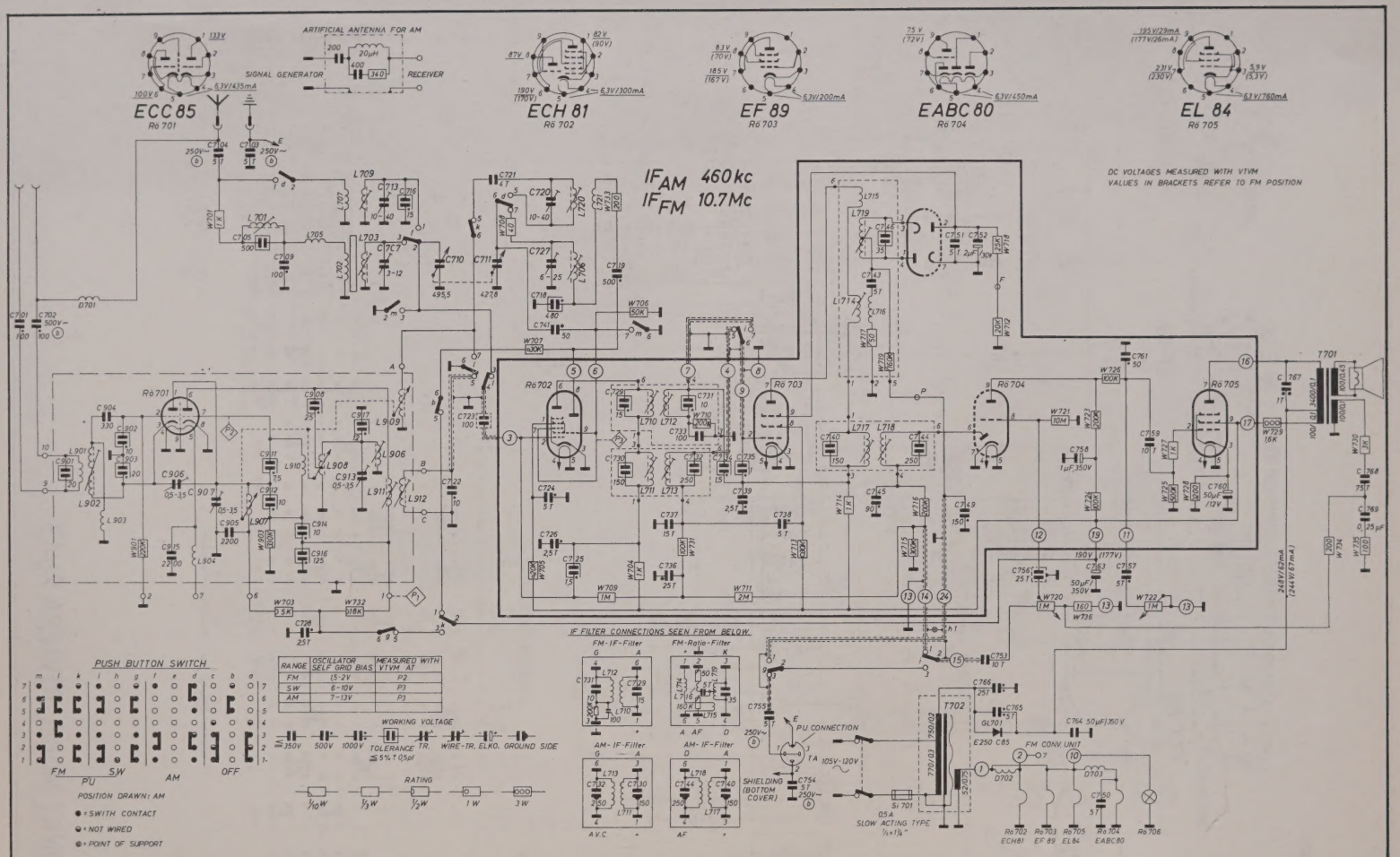
Blaupunkt Models
Ballett 2602, 2603

Blaupunkt Model
Riviera 2643



BLAUPUNKT MODEL RIVIERA 2643

Schematic Diagram Courtesy of Blaupunkt: Importer N. Pickens Import Company



BLAUPUNKT MODELS BALLETT 2602, 2603

Schematic Diagram Courtesy of Blaupunkt: Importer N. Pickens Import Company

PHOTOFACT® Folder

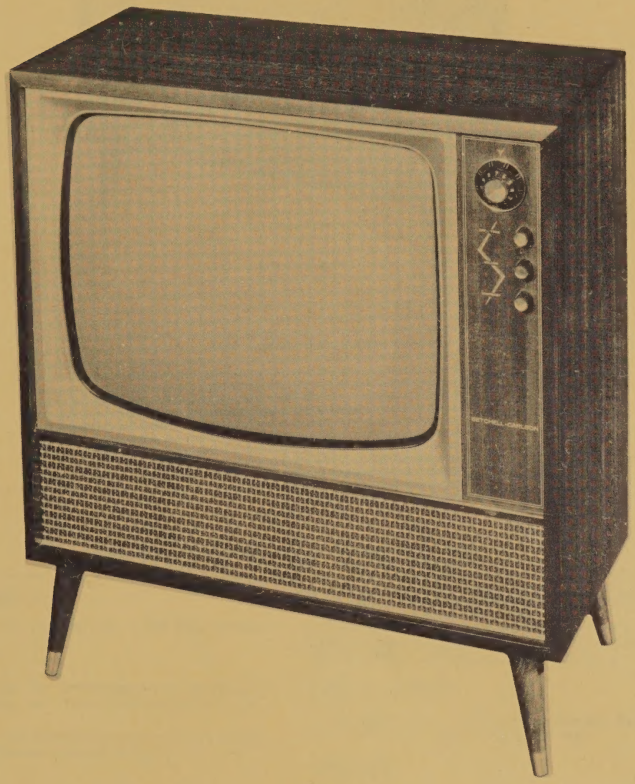
SETCHELL-CARLSON MODEL 601C (Ch. X159)

SETCHELL-CARLSON MODEL 601C (Ch. X159)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 601C (CH. X159)

SETCHELL-CARLSON MODEL 601C (Ch. X159)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

MODEL 601C (CH. X159)

TRADE NAME	Setchell-Carlson Model 601C (Ch. X159)
MANUFACTURER	Setchell-Carlson Inc., New Brighton, Minnesota
TYPE SET	Television Receiver
TUBES	VHF - Twenty-Three
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 150 Watts, 1.4 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

The safety glass is an integral part of the picture tube.

FUSE

A 3 Amp. fuse is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

A fuse wire is used for filament protection (For location, see M4 in photo "Chassis - Bottom View".)

FUSE DEVICE

A 2Ω fusible resistor is used for low voltage power supply protection. (For location, see R102 in photo "Chassis - Bottom View".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning Knobs.

AGC

No provision is made to vary the AGC on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (A14) located at top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

PICTURE TUBE SAVER

To extend life of weak picture tube, R101 may be shunted with a jumper wire to increase filament voltage on picture tube to 8 volts.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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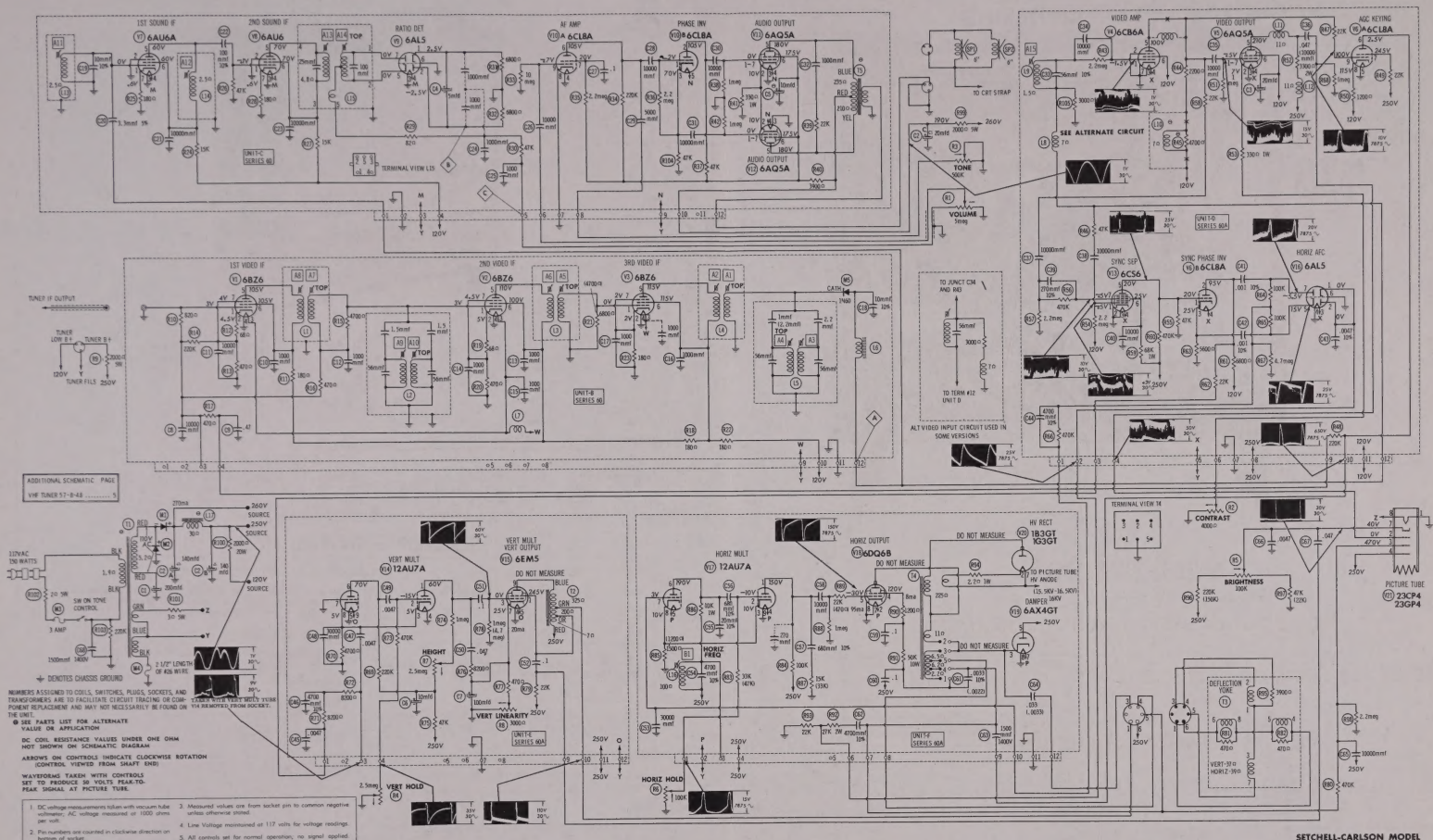
SETCHELL-CARLSON MODEL
601C (Ch. X159)

SETCHELL-CARLSON MODEL
601C (Ch. X159)

SET 529 FOLDER 1



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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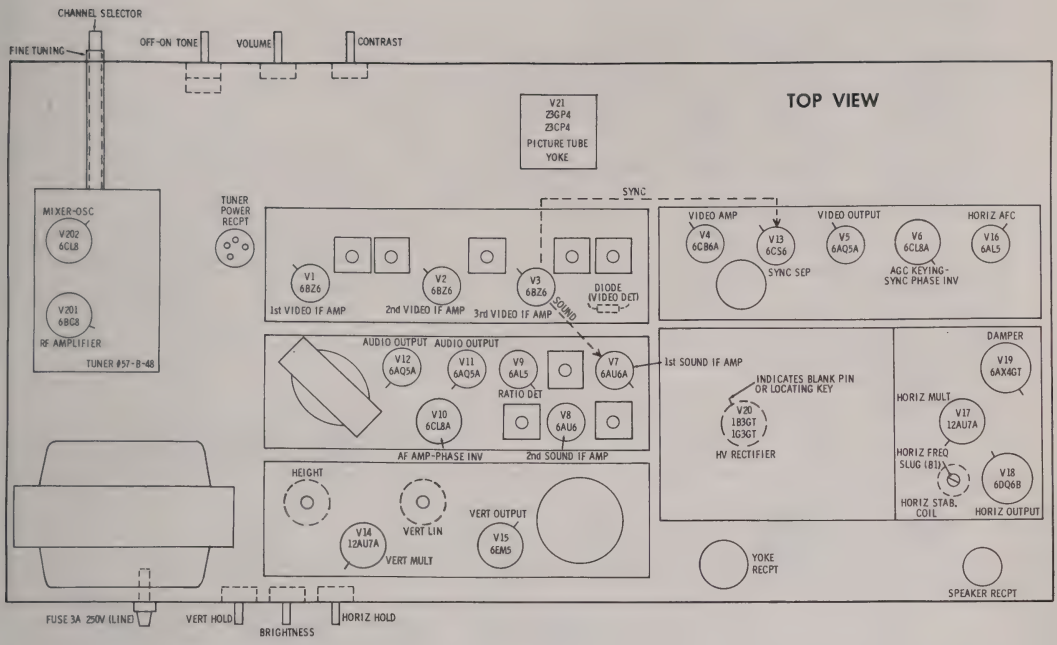
SETCHELL-CARLSON MODEL
601C (Ch. X159)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor, Fuse (Line), Fuse (Fil.), Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V17, V18, V19, V20, V21
No vertical deflection V14, V15
Poor vert. linearity or foldover V14, V15
Poor horiz. linearity or foldover V17, V18, V19
Narrow picture V17, V18, V19, Rectifier (B+)
Vert. off freq. V14
Horiz. off freq. V16, V17

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V5, V21
Has pic, no sound V7, V8, V9, V10, (V11 & V12)
Overloaded picture V6

SYNC FAILURE
No vert. sync V6, V13
No horiz. sync V6, V13
No vert. or horiz. sync V6, V7, V13

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001 mfd to pin 1 (grid) of 3rd Video IF Amplifier. Low side to chassis.	44MC (10MC Swp.)	42.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 47K to point (A). Low side to chassis.	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	"	"	41.25MC 47.25MC	"	"	A3, A4	Adjust A3 to place 41.25MC marker in trap notch as in Fig. 1. Adjust A4 to place 47.25MC marker in other trap notch.
3.	High side thru .001 mfd to pin 1 (grid) of 2nd Video IF Amplifier. Low side to chassis.	"	42.25MC 45.75MC	"	"	A5, A6	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
4.	High side thru .001 mfd to pin 1 (grid) of 1st Video IF Amplifier. Low side to chassis.	"	"	"	"	A7, A8	"
5.	"	"	41.25MC 47.25MC	"	"	A9, A10	Adjust A9 to place 41.25MC marker in trap notch as in Fig. 1. Adjust A10 to place 47.25MC marker in other trap notch.

SOUND IF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .01 mfd to point (A). Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	DC probe to point (B). Common to chassis.	A11, A12, A13	Adjust for maximum deflection.
7.	"	"	"	DC probe to point (C). Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A15 for MINIMUM Beat interference.

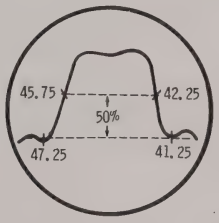
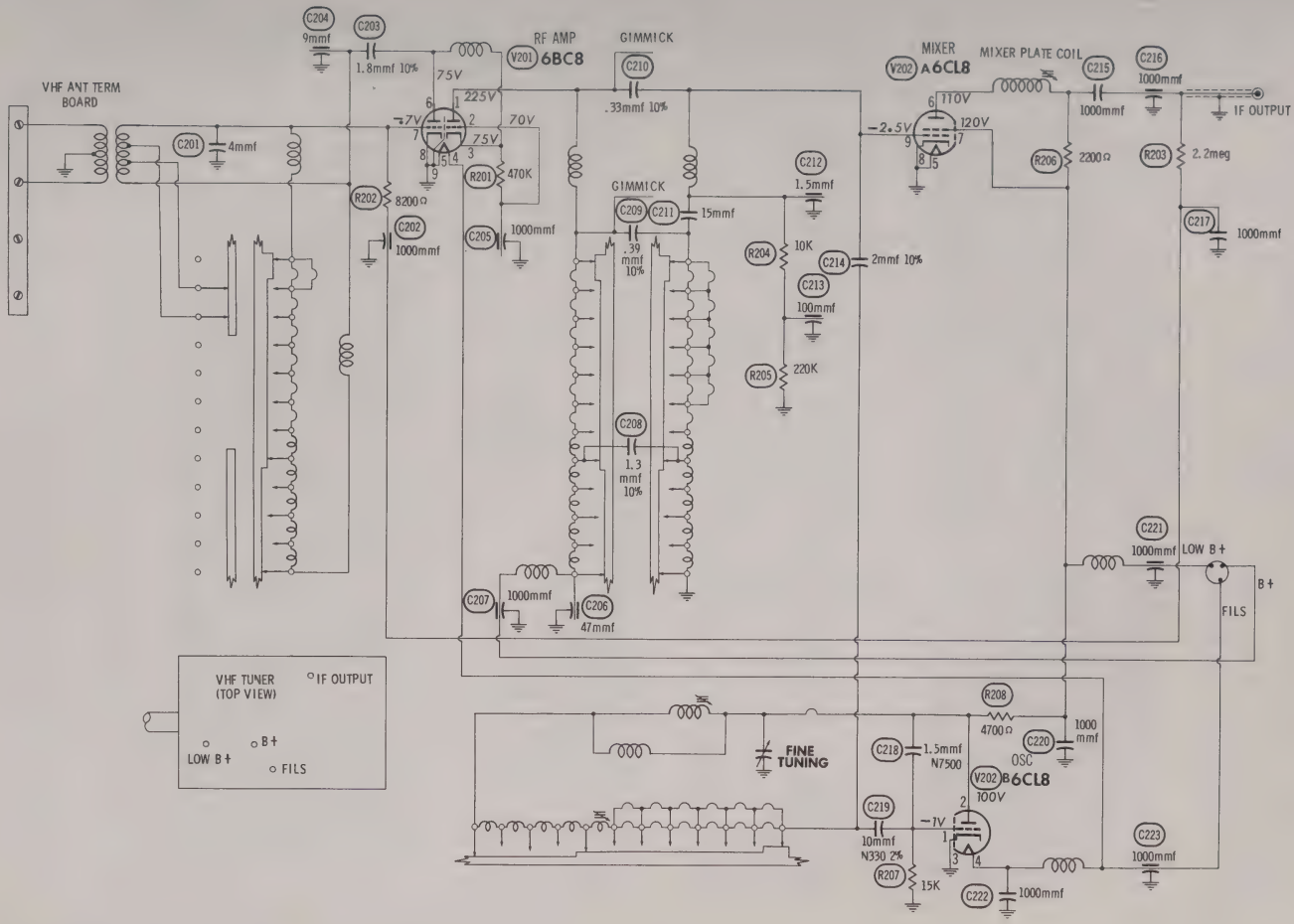


FIG.1



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 57-B-48

SETCHELL-CARLSON MODEL 601C (Ch. X159)

VHF TUNER PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •			• SYLVANIA •	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE		
V201	RF Amp.	6BC8	V202	Mixer-Osc.	6CL8		

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	4				C10V4C			10TCC-V39
C202	1000		EF-001	MFT-1000		CCF-102	CT280A	
C203	1.8 10%		NPO-SI 2.0		C10V2C			10TCC-V18
C204	9							
C205	1000		EF-001	MFT-1000		CCF-102	CT280A	
C206	47							
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1.3 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C209	.39 10%							
C210	.33 10%							
C211	15		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C212	1.5							
C213	100		EF-0001	MFT-100				
C214	2 10%		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C215	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	
C217	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C218	1.5 N7500					*		
C219	10 N330 2%							
C220	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C221	1000		EF-001	MFT-1000		CCF-102	CT280A	
C222	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C223	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	470K				R205	220K			
R202	8200Ω				R206	2200Ω			
R203	2.2meg				R207	15K			
R204	10K				R208	4700Ω			

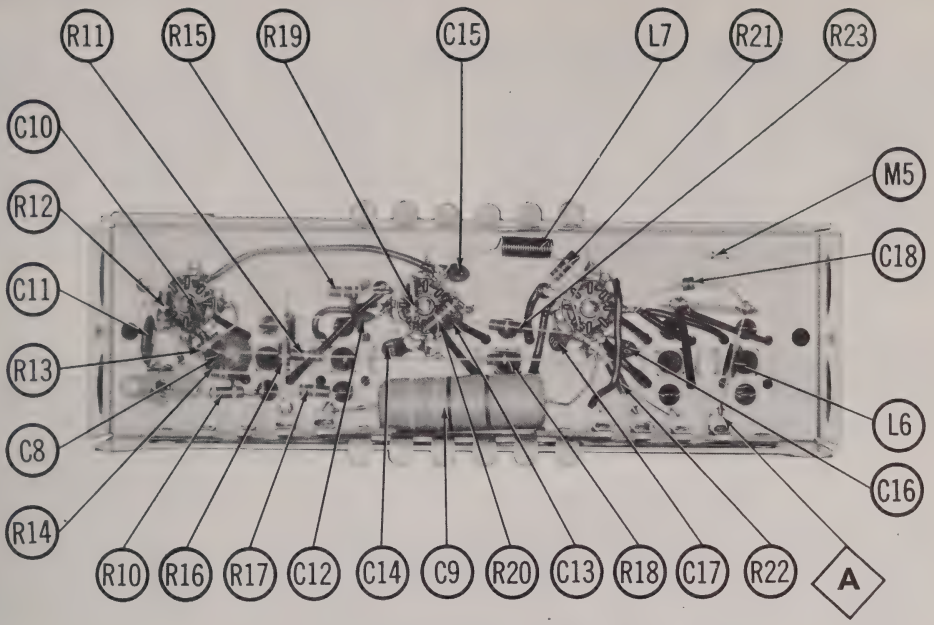
VHF TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATOR ALIGNMENT

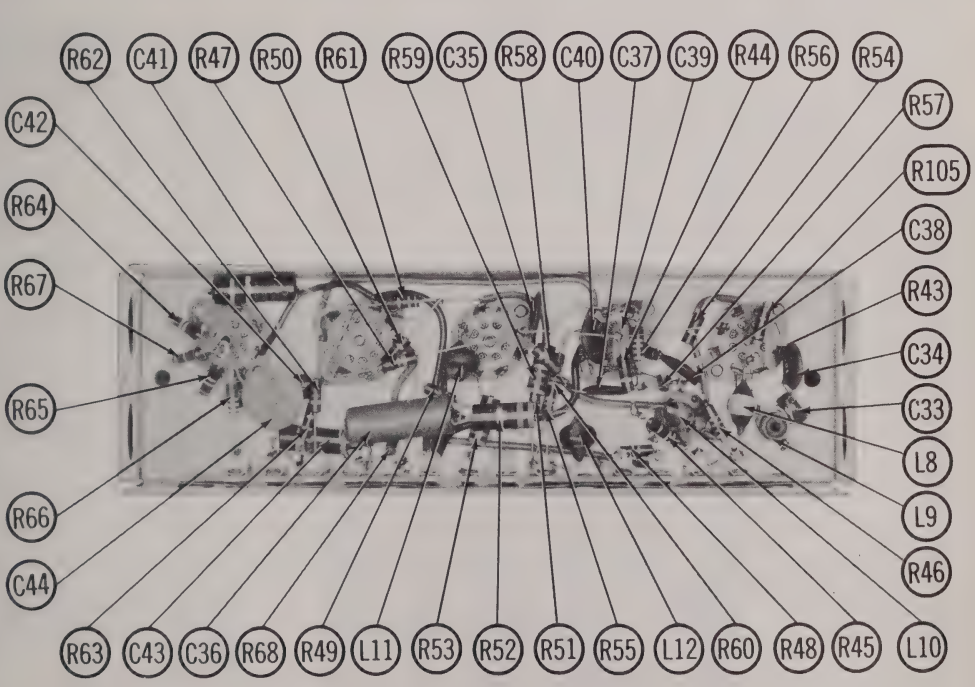
Set the Fine Tuning to the center of its range. One slug for high band adjustment is located at 2 o'clock, and should be adjusted first. The low band adjustment is located at 6 o'clock. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



VIDEO IF SUB CHASSIS



VIDEO, SYNC, AGC, HORIZ. AFC SUB CHASSIS

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	• GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V11	Audio Output	6AQ5A
V2	2nd Video IF Amp.	6BZ6	V12	Audio Output	6AQ5A
V3	3rd Video IF Amp.	6BZ6	V13	Sync Sep.	6CM6
V4	Video Amp.	6CB6A	V14	Vert. Mult.	12AU7A
V5	Video Output	6AQ5A	V15	Vert. Output	6EM5
V6	AGC Keying - Sync Phase Inv	6CL4A	V16	Horiz. AFC	6AL5
V7	1st Sound IF Amp.	6AU8A	V17	Horiz. Mult.	12AU7A
V8	2nd Sound IF Amp.	6AU6	V18	Horiz. Output	6DQ6B
V9	Ratio Det.	6AL5	V19	Damper	6AX4GT
V10	AF Amp - Phase Inv.	6CL8A	V20	HV Rectifier	1B3GT/1G3GT (1G3GT) *

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: Setchell-Carlson PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V21	23CP4	23CP4 ①	23CP4 ① 23CP4 ①		23CP4 ② 23CP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: Setchell-Carlson PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	300	200		PRI-075	BR20025	WS342	TD-300-200	TVA-1480	
C2A	▲140	350		AFH3-29-98	▲D0046 *BR10035	WP332.44		TVLS-3648 *	
B	▲140	350							
C	■30	350							
C3	20	350		AF2H-50	AD460	FP144	TM3-1750	TVL-1714	
C4	5	50		PRS310	BR55-50	TC30	TD-5-50	TVA-1303	
C5	10 ①	450		PRS720	BR1045	TC72	TD-10-450	TVA-1705	
C6	10	450		PRS720	BR1045	TC72	TD-10-450	TVA-1705	
C7	100	50		PRS360	BR1005	TC350	TD-100-50	TVA-1310	

① Some versions may use 30mfd in this application.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the ending column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C9	.47	200V		P2S8N-47		CUB2P47	2DP-5-474	GEM-3047	2TM-P47
C10	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C11	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C12	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C13	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C14	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C15	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C16	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C17	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C18	10	10%		NPO-SI 10	TCZ-10	CUZ2	CCTO-100	CNO-410	10TCC-Q10
C19	10	10%		NPO-SI 10	TCZ-10	CUQ1C	CCTO-100	CNO-410	10TCC-Q10
C20	3.3	5%		NPO-SI 3.3	TCZ-3R3	C10Y33C	CCTO-3R3	CNO-533	10TCC-V33
C21	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C23	100	10%		1469-00001	TCZ-100	22S5T1	CM-19B-101K	MCB235	MS-310
C23	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C24	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C25	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C26	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C27		400V		P488N-1		DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C28	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C29	5000			BPD-005	DD-502	BYA10DS	CCD-502	B-250	5HK-D50
C30	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C31	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C32	1000			BPD-001	DD-102	BYA10DL	CCD-102	B-210	5HK-D10
C33	56	10%		1469-00006	TCZ-56	22S5Q56	CM-19B-560K	CNO-456	MS-456
C34	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C35	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C36	.047	400V	(10000) *	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C37	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C38	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C39	270	10%		1469-00027	TCZ-270	22S5T27	CM-19B-271K	CNO-327	MS-327
C40	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C41	.001	400V	10%	V84C5D1-10%	DD-102	P85D1	6DP-1-102	GP2I0	6TM-D10
C42	.001	400V	10%	V84C5K-10%	DD-102	P85D1	6DP-1-102	GP2I0	6TM-D10
C43	.0047	400V	10%	V84C5D47-10%		P85D47	6DP-1-472	JL-347	6TM-D47
C44	4700		10%	DI-4700		P85D47	CCD-472	JL-347	10TS-D47
C45	.0047	400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C46	4700		10%	DI-4700		P85D47	CCD-472	JL-347	10TS-D47
C47	.0047	400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C48	.30000			BPD-03	DD-303	BYB6S3	CCD-303	GP130	5HK-S30
C49	.0047	400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C50	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C51	.1	600V		P488N-1		DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C52	.1	600V		P488N-1		DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C53	30000			BPD-03	DD-303	BYB6S3	CCD-303	GP130	5HK-S30
C54	4700		10%	DI-4700		P85D47	CCD-472	JL-347	10TS-D47
C55	20		10%	1469-00002	TCZ-20	22S5Q2	CM-19B-200K	CNO-432	MS-42

FIXED CAPACITORS (cont)

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C56	680	10%		1469-00068		5HS7S8	CM-19B-681K	MCJ249	MS-368
C57	680	10%		1469-00068		5HS7S8	CM-19B-681K	MCJ249	MS-368
C58	10000			BPD-01	DD-103	BYA10BL	CCD-103	B-110	5HK-S10
C59	.1	400V		P488N-1		DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C60	.1	600V		P888N-1		DF-104	CUB6P1	6DP-4-104	GEM-601	4TM-P10
C61	.0033	600V	10% (.0022) *	V84C6D33-10%			PM6D33	6DP-1-332	JL-233	6TM-D33
C62	4700		10%	DI-4700			PM6D47	CCD-472	JL-247	10TS-D47
C63	1500	1400V		HVD-15-1500	DD30-152		HVC16D15	3CCD-152	2HV-215	30GA-D15
C64	.033	800V	(.0033) *	P68N5-033	DD-303		CUB6S33	6DP-3-333	GEM-6133	6TM-S33
C65	10000			BPD-01	DD-103		BYA10BL	CCD-103	B-110	5HK-S10
C66	.0047	400V		P488N-0047	D6-473		CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C67	.047	400V		P488N-047	DD-503		CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C68	1500	1400V		HVD-15-1500	DD30-152		HVC16D15	3CCD-152	2HV-215	30GA-D15

* Alternate Value

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	Setchell-Carlson PART No.	REPLACEMENT DATA: CENTRALAB PART No.	CLAROSTAT PART No.	CTS - IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5meg	½	817	B-88	A47-5meg-Z	QJ3-141	U65	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2	4000Ω	½	805	B-12		QJ3-114		Contrast
R3A	500K	½	816	B-50-S	A47-500K-Z	QJ3-133	U48	Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R4A	2.5meg	½	803	BX-83	A47-2.5meg-S	B11-239	SU-565	Vert. Hold
B	Shaft			Not Req.	FKS-1/4	SK8	Not Req.	
R5A	100K	½	* 802	BX-40	A47-100K-S	B11-128	SU-41	Brightness
B	Shaft			Not Req.	FKS-1/4	SK8	Not Req.	
R6A	100K	½	802	BX-40	A47-100K-S	B11-128	SU-41	Horiz. Hold
B	Shaft			Not Req.	FKS-1/4	SK8	Not Req.	
R7A	2.5meg	½	803	BX-83	A47-2.5meg-S	B11-239	SU-565	Height
B	Shaft			Not Req.	FKS-1/4	SK8	Not Req.	
R8A	3000Ω	½	801	AB-8	A47-3000-S	B11-112	SU-8	Vert. Linearity
B	Shaft			AK-1	FKS-1/4	SK8	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R9	2000Ω 5W	PW5-2000	5W-SQ-2000	
R10	820Ω			
R11	180Ω			
R12	68Ω			
R13	470Ω			
R14	220K			
R15	4700Ω			
R16	470Ω			
R17	470Ω			
R18	180Ω			
R19	68Ω			
R20	470Ω			(4700Ω) *
R21	6800Ω			
R22	180Ω			
R23	180Ω			
R24	15K			
R25	180Ω			
R26	47K			
R27	15K			
R28	180Ω			
R29	82Ω			
R30	47K			
R31	6800Ω			
R32	6800Ω			
R33	10meg			
R34	220K			
R35	2.2meg			
R36	2.2meg			
R37	47K			
R38	1meg			
R39	22K			
R40	3900Ω			
R41	330Ω 1W			
R42	1meg			
R43	2.2meg			
R44	2200Ω			
R45	4700Ω			Note 1
R46	47K			
R47	22K			
R48	220K			
R49	22K			
R50	1200Ω			
R51	1meg			
R52	3300Ω 2W			
R53	330Ω 1W			
R54	2.2meg			
R55	47K			
R56	470K			
R57	2.2meg			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R58	22K			
R59	68K 1W			
R60	470K			
R61	6800Ω			
R62	22K			
R63	5600Ω			
R64	100K			
R65	100K			
R66	470K			
R67	4.7meg			
R68	1meg			
R69	220K			
R70	4700Ω			
R71	8200Ω			
R72	8200Ω			
R73	470K			
R74	1meg			
R75	47K			
R76	8200Ω			
R77	470Ω			
R78	1meg			(4.7meg) *
R79	22K			
R80	470K			
R81	470Ω			
R82	470Ω			
R83	33K			(47K) *
R84	100K			
R85	1500Ω			(1200Ω) *
R86	10K 1W			
R87	15K			(33K) *
R88	1meg			
R89	22K			(470Ω) *
R90	1200Ω			
R91	50K 10W	PW10-50K	10W-SQ-50K	
R92	27K 2W			
R93	22K			
R94	2.2Ω 1W			
R95	3900Ω			
R96	220K			(150K) *
R97	47K			(22K) *
R98	2.2meg			
R99	2000Ω 5W	PW5-2000	5W-SQ-2000	
R100	2000Ω 20W	PW20-2000	20W-SQ-2000	
R101	3Ω 5W	PW5-3	5W-SQ-3	
R102	2Ω 5W †	PW5-2	5W-SQ-2	
R103	220K			
R104	47K			
R105	3000Ω			

* Alternate Value. † Fusible Type. Note 1. May not be used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	1st Video IF						
L2A	47.25MC Trap						
B	41.25MC Trap						
L3	2nd Video IF						
L4	3rd Video IF						
L5A	47.25MC Trap						
B	41.25MC Trap						
L6	RF Choke (12uh)	BC-566	4622		RTC-8523	T862	
L7	Fil. Choke (.5uh)	BC-562	4604		RTC-8518	T856	
L8	Peaking (400uh)	TV-202	6136		RTC-8579	T322	
L9	4.5MC Trap	TV-151	1470		RTC-8603	T250	
L10	Peaking (400uh) ①	TV-202	6136		RTC-8579	T322	① May not be used in some versions.
L11	Peaking (325uh)	TV-185	6181		RTC-8598	T315	
L12	Peaking (325uh)	TV-185	6181		RTC-8598	T315	
L13	1st Sound IF	TV-154	1470-A		RTC-8604	T247	
L14	2nd Sound IF	TV-154	1470-A		RTC-8604	T247	
L15	Ratio Detector	TV-115	6271		RTC-8620	T237	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L16	Horiz. Stabilizing		TV-163	6210	RC110	RTC-8622	HS-5	WLC-25	T103

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	RATINGS: DC RES.	RATINGS: INDUCTANCE @ CURRENT 1000 (m/a)	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L17	.220A	30Ω	.75 Hy.	22-2373 ①				C-36X	① Alternate Part #LM222

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	110V ② 1.4A	110V ② 330A AC	6V ② .6A Tap ③ 6.3V ④ 9A	M1083U ①					① Alternate Part #M1083

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output		A-2852 ①		VO-100 ①	26S3	A-142X	
T3	Yoke (Horiz. 21MH) (110P) (Vert. 35MH)			PCM-1834 ② ③	DY-48A ③ ④	Y-53 ② ③	Y-62 & NW20	
T4	Rear Cover and Centering Device Horiz. Output							

① Drill new mounting hole(s).
② Use original rear cover and centering device.
③ Use original yoke plug. Connect Yoke Terminal #3 to Plug #3. Connect 3900Ω ½ watt Resistor from Yoke Terminals #2 and #7 to Plug #4, Yoke Terminal #1 to Yoke Plug #5, Yoke Terminal #6 to Yoke Plug #6, Yoke Terminal #4 to Yoke Plug #1.
④ Use original Yoke Damping Network.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	7400Ω CT	1-2Ω	M162 ①	A-2900 ②	A-3850 ②	24S55	S-55X	① Alternate Part #TMD85. ② Drill new mounting hole(s).

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: Setchell-Carlson PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω		6AL5	
SP2	6"	PM	3-4Ω		6AL5	

SETCHELL-CARLSON MODEL 601C (Ch. X159)

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Setchell-Carlson PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.270A		1N1763	40H	SR500	
M2	.270A		1N1763	40H	SR500	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Setchell-Carlson PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG	3A 250V			312003	342001	AGC 3	HKP
M4	2½"	length	#26 wire					

SIGNAL DIODES

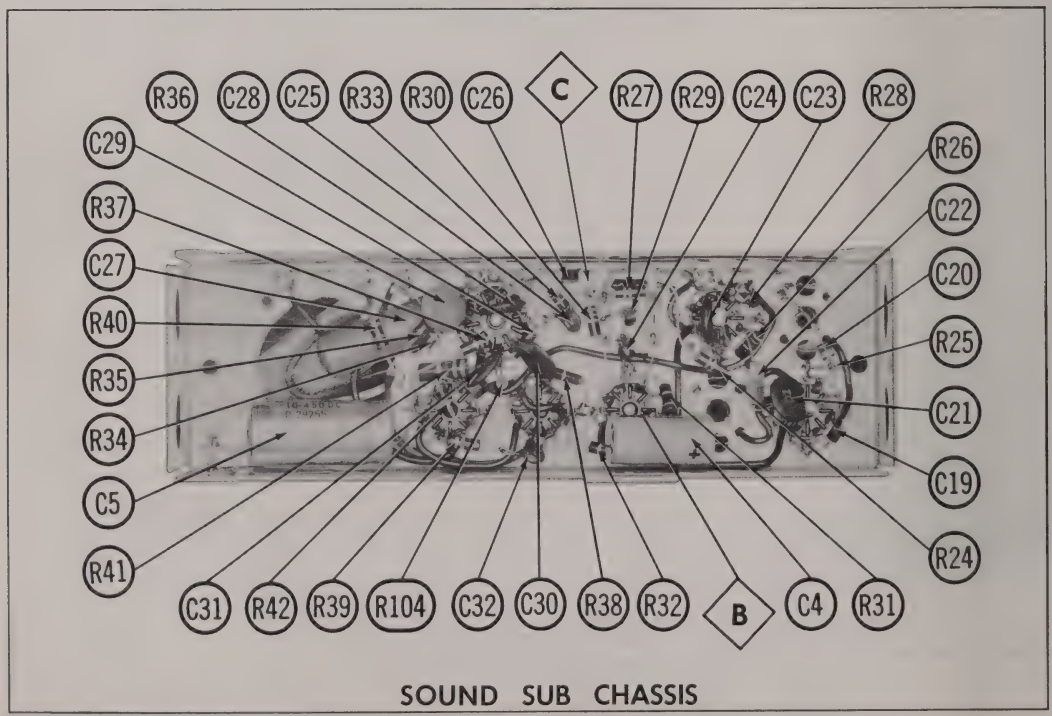
ITEM No.	ORIG. TYPE	REPLACEMENT DATA Setchell-Carlson PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M5	1N60			1N60	1N60	Video Detector (Pigtail)

MISCELLANEOUS

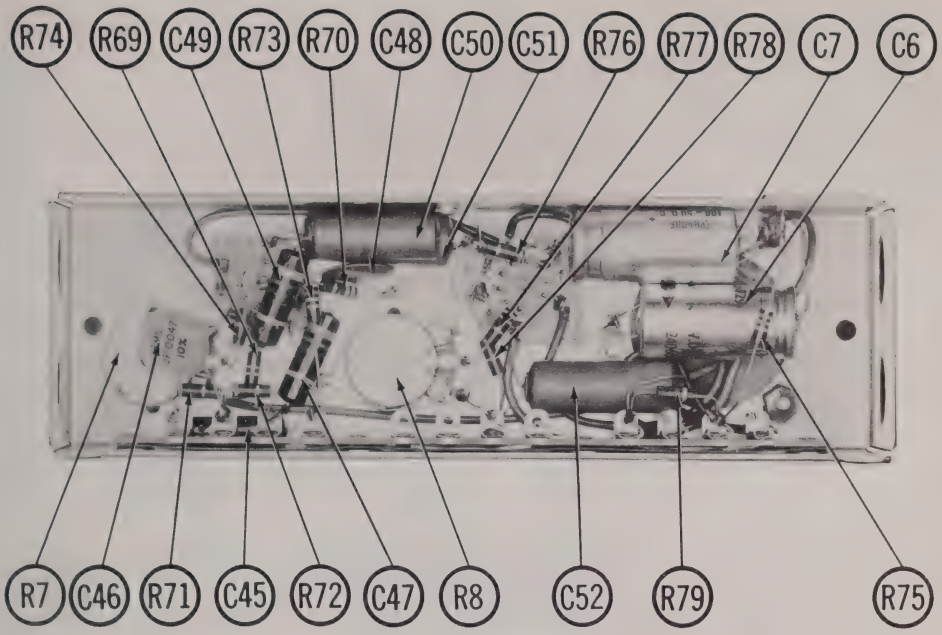
ITEM No.	PART NAME	Setchell- Carlson PART No.	NOTES
M6	Tuner (VHF)	57-B-48	STANDARD COIL REPLACEMENT #GG-4290-A

WIRING DATA

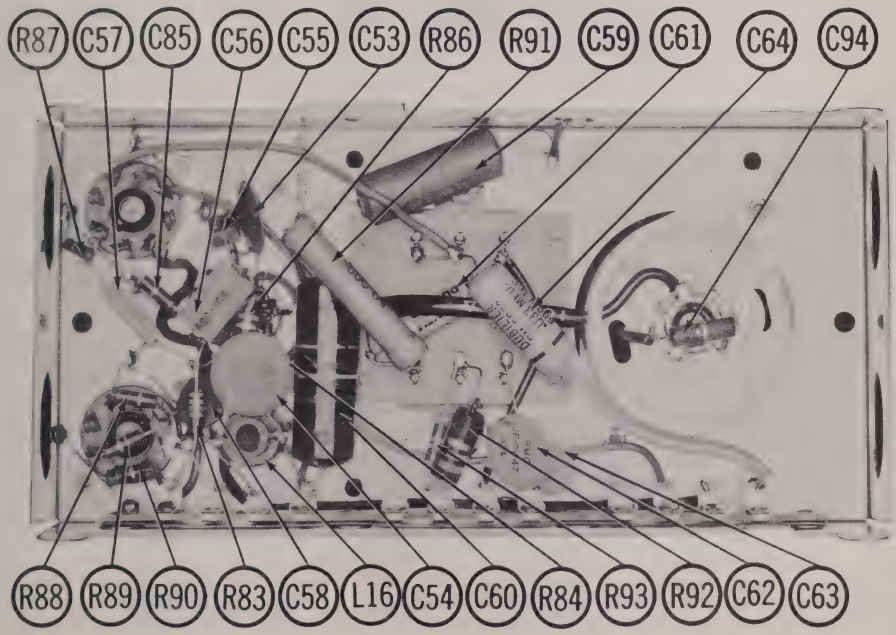
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



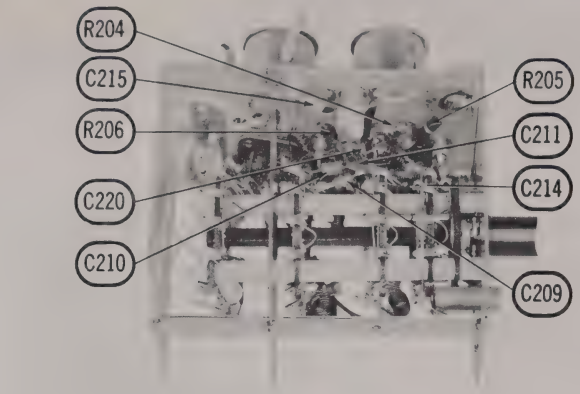
SOUND SUB CHASSIS

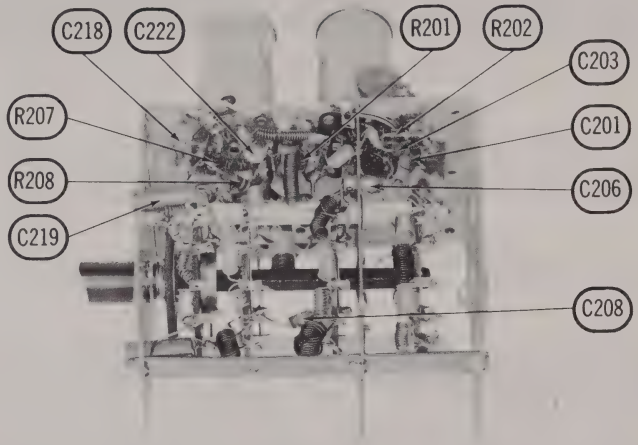


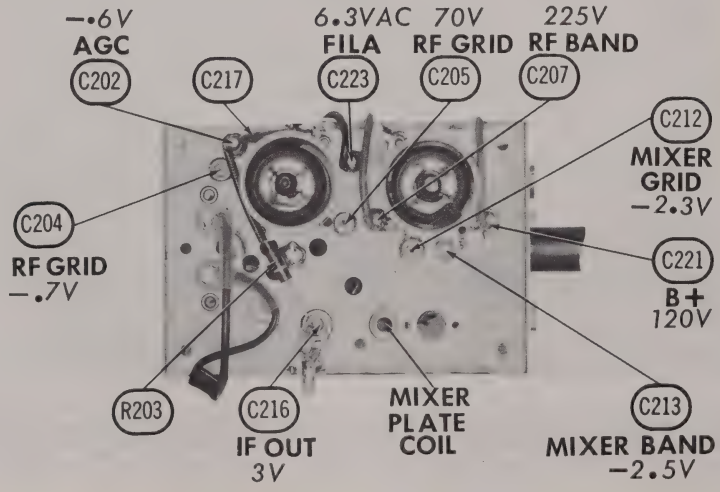
VERTICAL SWEEP SUB CHASSIS



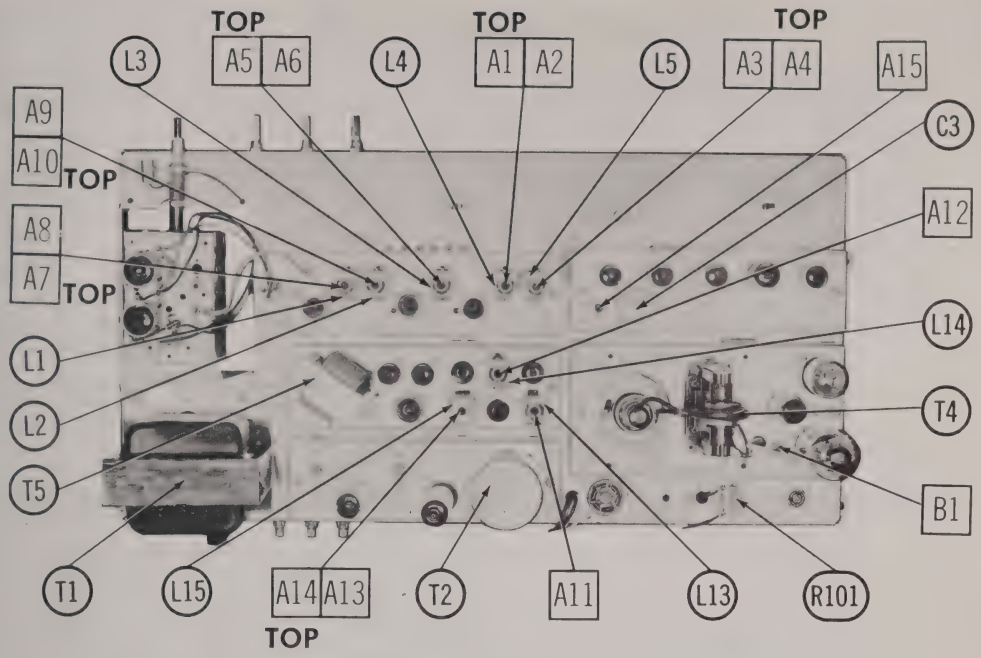
HORIZONTAL SWEEP SUB CHASSIS



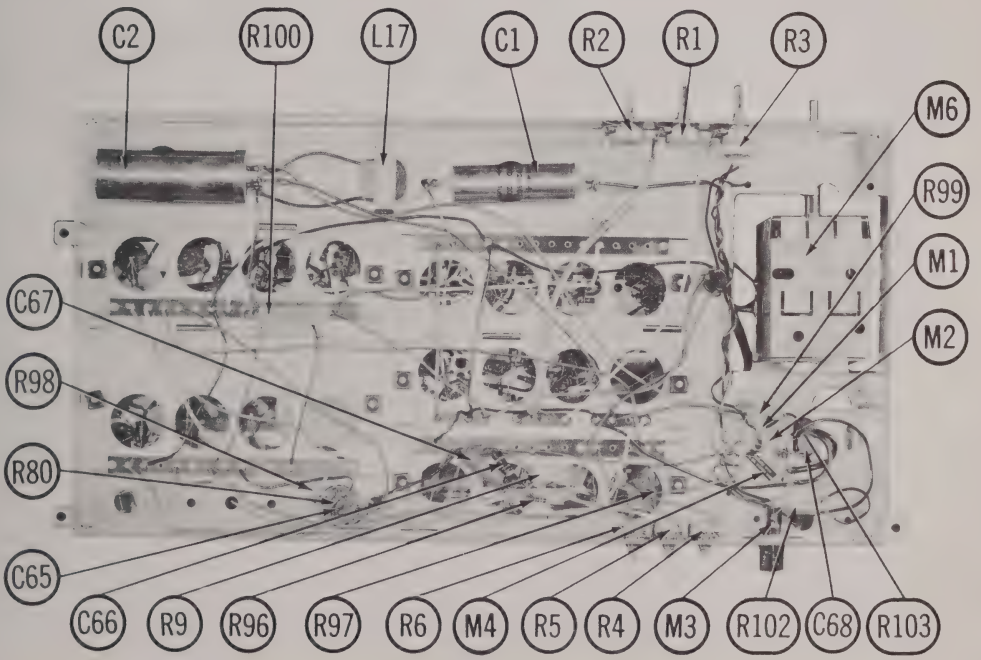




VHF TUNER 57-B-48



CHASSIS - TOP VIEW



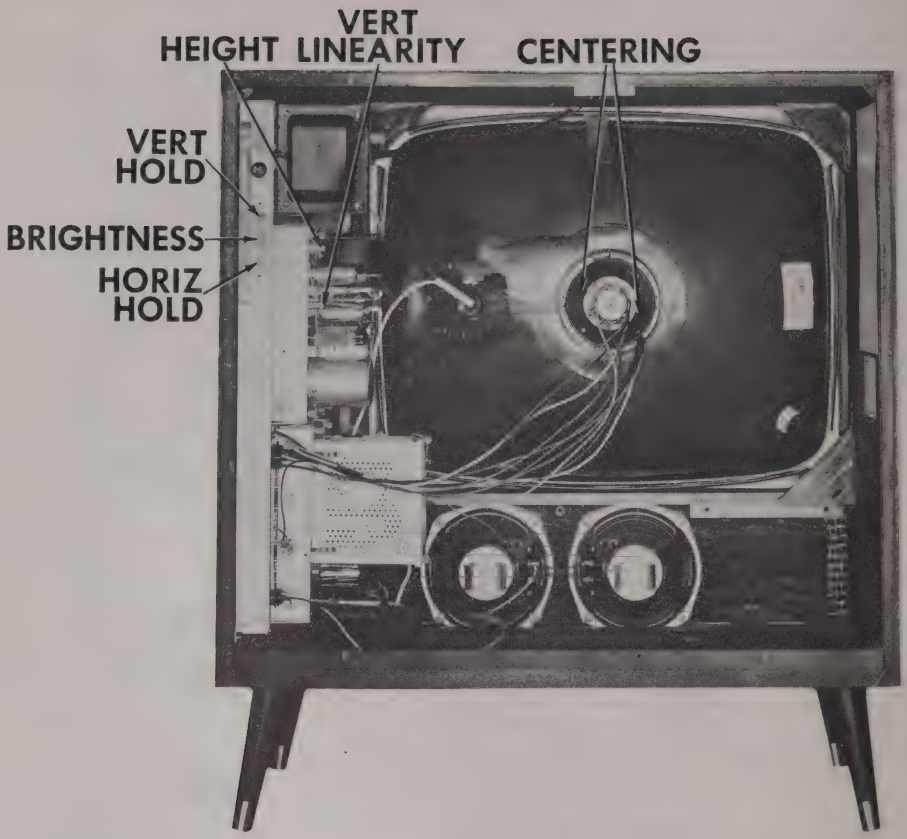
CHASSIS - BOTTOM VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	220K	540Ω	.1Ω	0Ω	†2500Ω	†2500Ω	470Ω		
V2	6BZ6	220K	540Ω	.1Ω	0Ω	†2400Ω	†2400Ω	470Ω		
V3	6BZ6	.1Ω	180Ω	.1Ω	0Ω	†2200Ω	†2200Ω	180Ω		
V4	6CB6A	2.2meg	0Ω	0Ω	.1Ω	†4200Ω	†2000Ω	0Ω		
V5	6AQ5A	1meg	● 800Ω	0Ω	.1Ω	†3300Ω	†2000Ω	NC		
V6	6CL8A	47K	†8800Ω	5600Ω	.1Ω	0Ω	440K	†22K	†3200Ω	†26K
V7	6AU6A	2.5Ω	0Ω	0Ω	.1Ω	†17K	†17K	180Ω		
V8	6AU6	47K	0Ω	0Ω	.1Ω	†17K	†17K	180Ω		
V9	6AL5	6800Ω	6800Ω	0Ω	.1Ω	5meg	0Ω	5meg		
V10	6CL8A	2.2meg	†53K	47K	0Ω	.1Ω	†225K	†2.2meg	0Ω	10meg
V11	6AQ5A	1meg	330Ω	0Ω	.1Ω	†2235Ω	†5900Ω	NC		
V12	6AQ5A	1meg	330Ω	0Ω	.1Ω	†2210Ω	†5900Ω	NC		
V13	6CS6	†2.2meg	0Ω	0Ω	.1Ω	47K	†68K	2.7meg		
V14	12AU7A	● †1.4meg	● 1meg	4700Ω	0Ω	0Ω	†270K	0Ω	4700Ω	.1Ω
V15	6EM5	†40Ω	NC	1meg	0Ω	.1Ω	NC	● 1200Ω	NC	†560Ω
V16	6AL5	22K	22K	.1Ω	0Ω	4.8meg	0Ω	4.8meg		
V17	12AU7A	†100K	●55K	1500Ω	.1Ω	.1Ω	†10K	5.2meg	1500Ω	0Ω
V18	6DQ6B	TP	.1Ω	TP	ǂ50K	1meg	NC	0Ω	0Ω	TOP CAP ǂ11Ω
V19	6AX4GT	TP	NC	2.7meg	NC	†30Ω	NC	.1Ω	0Ω	
V20	1B3GT/ 1G3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ǂ235Ω
V21	23CP4	0Ω	1meg	ǂ470K	†30Ω	NC	NC	● 60K	.1Ω	
V201	6BC8	†2000Ω	▲470K	INF	.1Ω	0Ω	INF	2.4meg	0Ω	0Ω
V202	6CL8	15K	†6700Ω	0Ω	.1Ω	0Ω	†4200Ω	†2000Ω	0Ω	210K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
ǂ MEASURED FROM PIN 3 OF V19.
▲ MEASURED FROM CATHODE.

NC NO CONNECTION
TP TIE POINT



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a station, preferably with a test pattern.

Set the Horizontal Hold Control at the center of its range and adjust the Horizontal Frequency Slug (B1) until the picture synchronizes horizontally.

Check horizontal sync on other channels and if necessary, retouch B1 for best sync on all channels.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 12 wood screws holding rear cover.
2. Remove rear cover.
3. Remove 5 push-on type knobs at front of cabinet.
4. Remove speaker plug, yoke plug, picture tube socket, and high voltage lead.
5. Remove 2 screws holding antenna terminal board.
6. Remove 3 chassis screws (one at top and 2 at bottom) holding chassis to cabinet.
7. Remove chassis.

PHOTOFACT® Folder with CIRCUITRACE®

WESTINGHOUSE CHASSIS
V-2389-1, -2, -3, V-2405-1, V-2406-1

WESTINGHOUSE CHASSIS
V-2389-1, -2, -3, V-2405-1, V-2406-1

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

WESTINGHOUSE CHASSIS
V-2389-1, -2, -3, V-2405-1, V-2406-1

MODEL H-K4410

SET 529 FOLDER 2

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

WESTINGHOUSE CHASSIS
V-2389-1, -2, -3, V-2405-1, V-2406-1

MODEL H-K4410

TRADE NAME	WESTINGHOUSE MODELS	TV Chassis	REMOTE CONTROL Receiver Chassis	REMOTE CONTROL Transmitter Chassis	VHF Tuner	UHF Tuner
	H-K4410, H-K4411, H-K4412, H-K4413, H-K4511, H-K4512, H-K4513, H-K4514, H-K4515	V-2389-3	V-2405-1	V-2406-1	470V064H01	
	H-K4910, H-K4911, H-K4912, H-K4913	V-2389-1	.....	.....	470V064H01	
	H-K4910U, H-K4911U, H-K4912U, H-K4913U	V-2389-2	.....	.....	470V063H02	472V034H02

MANUFACTURER	Westinghouse Electric Corp., Television & Radio Div., Metuchen, New Jersey
TYPE SET	Television Receiver TUBES TV: VHF - Eighteen, UHF - Nineteen Remote Control Receiver: Seven TRANSISTOR Remote Control Transmitter: One
POWER SUPPLY	105-120 Volts AC, 60 Cycle
RATING	TV & Remote Control Receiver: 240 Watts, 2.15 Amp. @ 117 Volts AC (275 Watts, 2.5 Amp. While Tuning Remote Control Receiver: 32 Watts, .35 Amp. @ 117 Volts AC with Remote Control)
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 3 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE

TV: A 3.5A S/B (Line) fuse is used for receiver protection. (For location, see "Tube Placement Chart".) Two fuse wires are used for filament protection. (For location, see M2 and M3 in photo "TV Chassis - Bottom View".)

Remote Control Receiver: A 3/4 Amp. S/B fuse is used for receiver protection. (For location, see M15 in photo "Remote Control Receiver - Bottom View".)

TUNER OSCILLATOR ADJUSTMENTS

Remove control knobs, rear cover, and front escutcheon (held by screws inside cabinet). The oscillator adjustments are located just above the memory fine tuning shaft.

AGC

No provision is made to vary the AGC on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B2). (For location, see "Tube Placement Chart".)

WIDTH

Loosen yoke clamp and move plastic tab in or out (between yoke and picture tube neck) for decrease or increase in width.

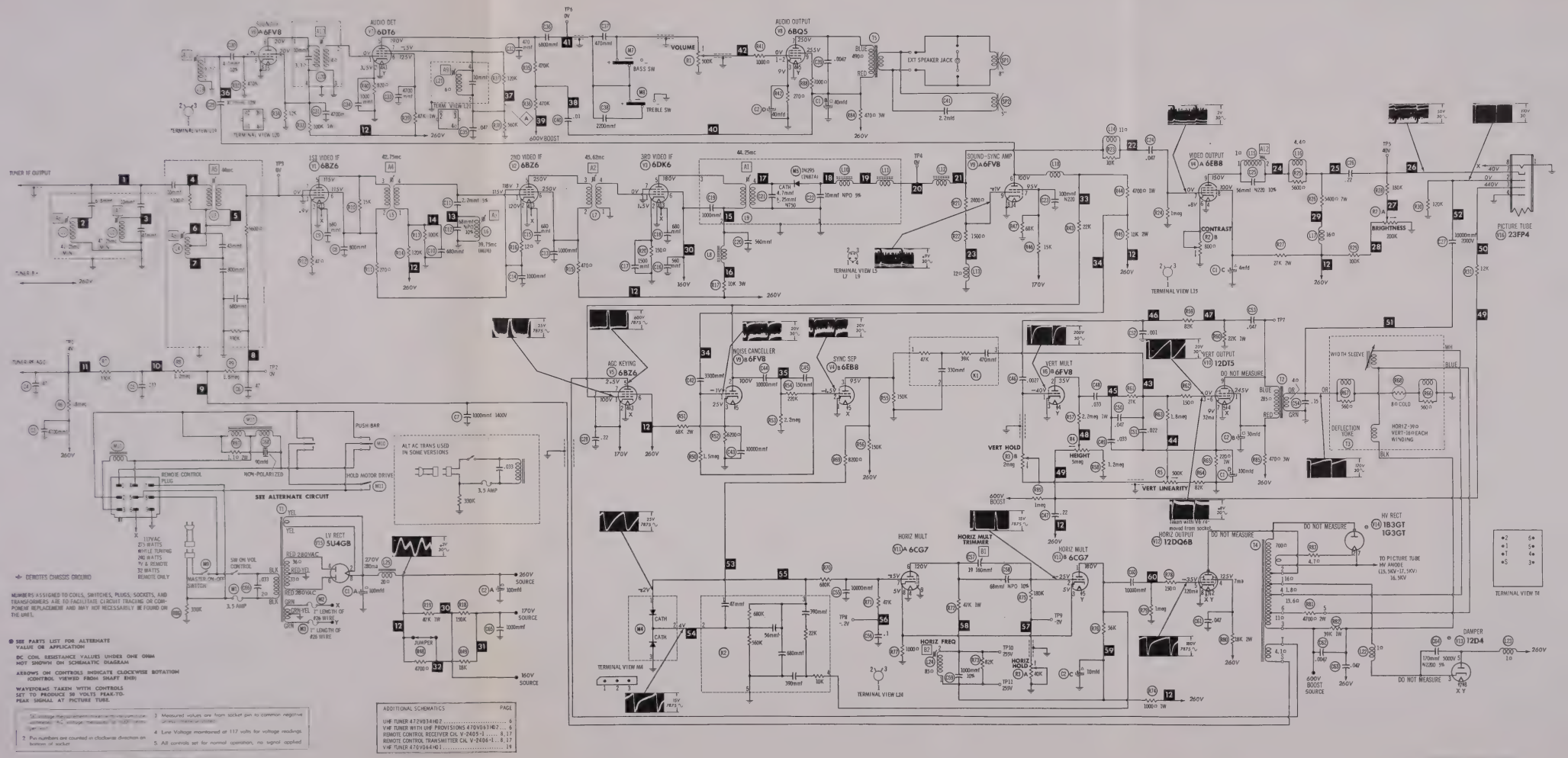
CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KA584



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS AID TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. Voltage measurements made with [illegible] operation.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative [illegible].
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

ADDITIONAL SCHEMATICS	PAGE
UHF TUNER 472V034H02	6
VHF TUNER WITH UHF PROVISIONS 470V031H02	6
REMOTE CONTROL RECEIVER CH. V-2405-1	8, 17
REMOTE CONTROL TRANSMITTER CH. V-2406-1	8, 17
VHF TUNER 476V064H01	19

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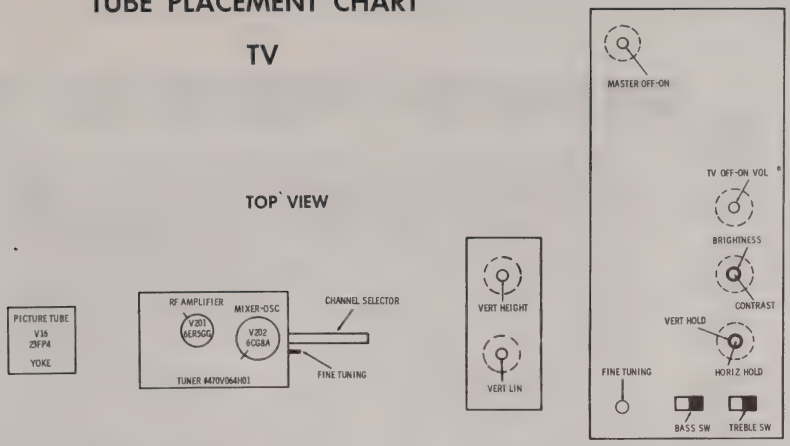
WESTINGHOUSE CHASSIS V-2389-1, -2, -3, V-2405-1, V-2406-1

TUBE PLACEMENT CHART

TV



TUBE FAILURE CHECK CHART

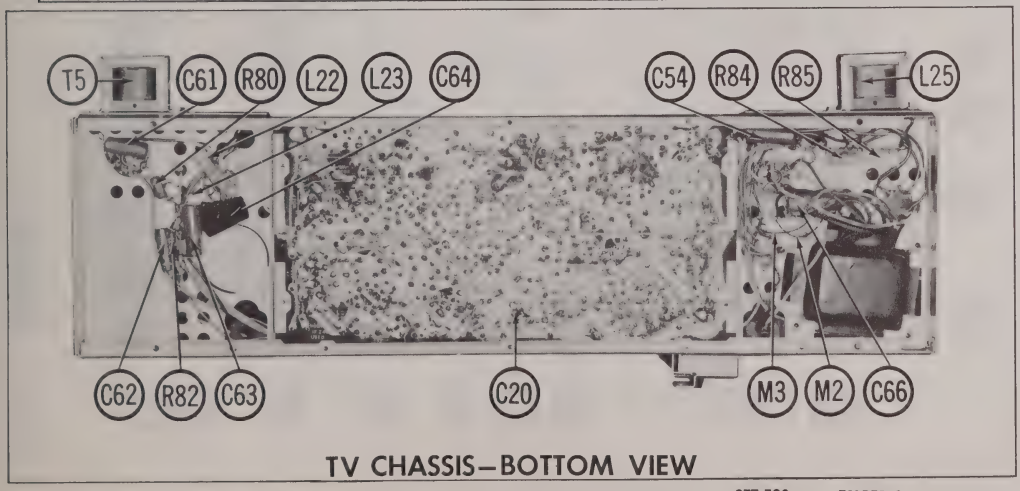
The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Line), Fuse Wires (Fil.), V15

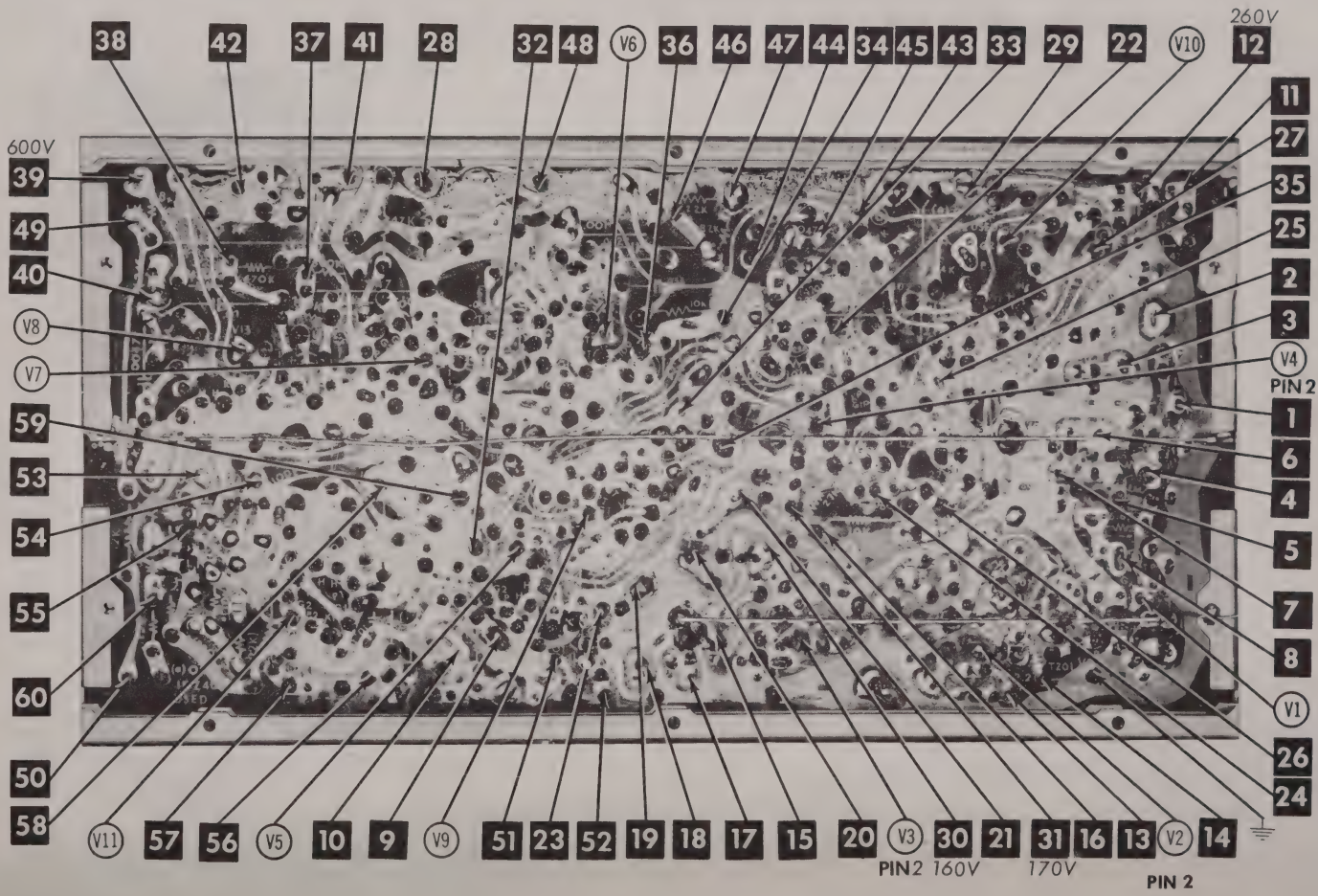
SWEEP FAILURE
No raster, has sound V11, V12, V14, V16
No vertical deflection V8, V10
Poor vert. linearity or foldover V8, V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15
Vert. off freq. V6, V10
Horiz. off freq. Diodes (Horiz. AFC), V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.)
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V16
Has pic, no sound V9, V8, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V9, V4
No horiz. sync V9, V4
No vert. or horiz. sync V9, V4



TV CHASSIS—BOTTOM VIEW



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TV PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

ALIGNMENT INSTRUCTIONS
TV

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead to a 4 volt bias supply to point TP-2. Positive to chassis.
Connect the negative lead to a 2.5 volt bias supply to point TP-4. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to TP-3. Low side to chassis.	Not used	44.25MC (Unmod.)	10	USE VTVM DC probe to TP-4. Common to chassis. (Across Video Det. Load)	A1	Adjust for maximum deflection.
2.	"	"	45.62MC	"	"	A2	"
3.	"	"	39.75MC	"	"	A3	Adjust for MINIMUM deflection.
4.	"	"	42.75MC	"	"	A4	Adjust for maximum deflection.
5.	"	44MC (10MC Swp.)	39.75MC 41.25MC 42.25MC 43.0MC 45.0MC 45.75MC	"	Vert. Amp. to TP-4. Low side to chassis.		Check for response similar to Fig. 1. If necessary, retouch A1, A2 and A4 for desired response.
6.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	Not used	44.25MC	"	USE VTVM DC probe to TP-4. Common to chassis.	Mixer Plate Coil	Adjust for maximum deflection.
7.	"	"	44.0MC	"	"	A5	"
8.	"	"	41.25MC	"	"	A6	Adjust for MINIMUM deflection.
9.	"	"	47.25MC	"	"	A7	"
10.	"	"	"	"	"	A8	"
11.	"	44MC (10MC Swp.)	41.25MC 42.25MC 43.0MC 45.0MC 45.75MC	"	Vert. Amp. to TP-4. Low side to chassis.		Check for response similar to Fig. 2. If necessary, retouch Mixer Plate Coil and A5 for desired response.

SOUND IF ALIGNMENT

Tune in a TV signal, preferably with a test pattern and tone signal. Adjust the Fine Tuning for best reception. Set the Volume Control so that the sound is audible. Adjust A9 for maximum sound output.
Connect a short clip lead from pin 1 (grid) of the 3rd Video IF Amp. to chassis. Connect the DC probe of the VTVM to point (A). Common to chassis. Adjust A10 for maximum negative voltage on the VTVM. Remove the clip lead from the circuit. Disconnect the antenna lead and place near the antenna terminals so that the signal coupled to the receiver produces a very weak picture. A hiss will be noted in the sound. Adjust A11 for maximum negative voltage on the VTVM. If the VTVM indicates a broad response while adjusting A11, move the antenna lead farther from the antenna terminals.

4.5MC TRAP ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	High side thru .001mfd to TP-4. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	Demodulator probe thru .001mfd to TP-5. Common to chassis.	A12	Adjust for MINIMUM deflection.

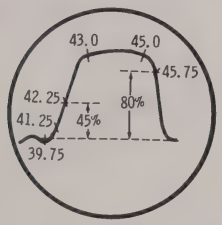


FIG.1

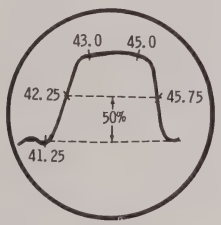
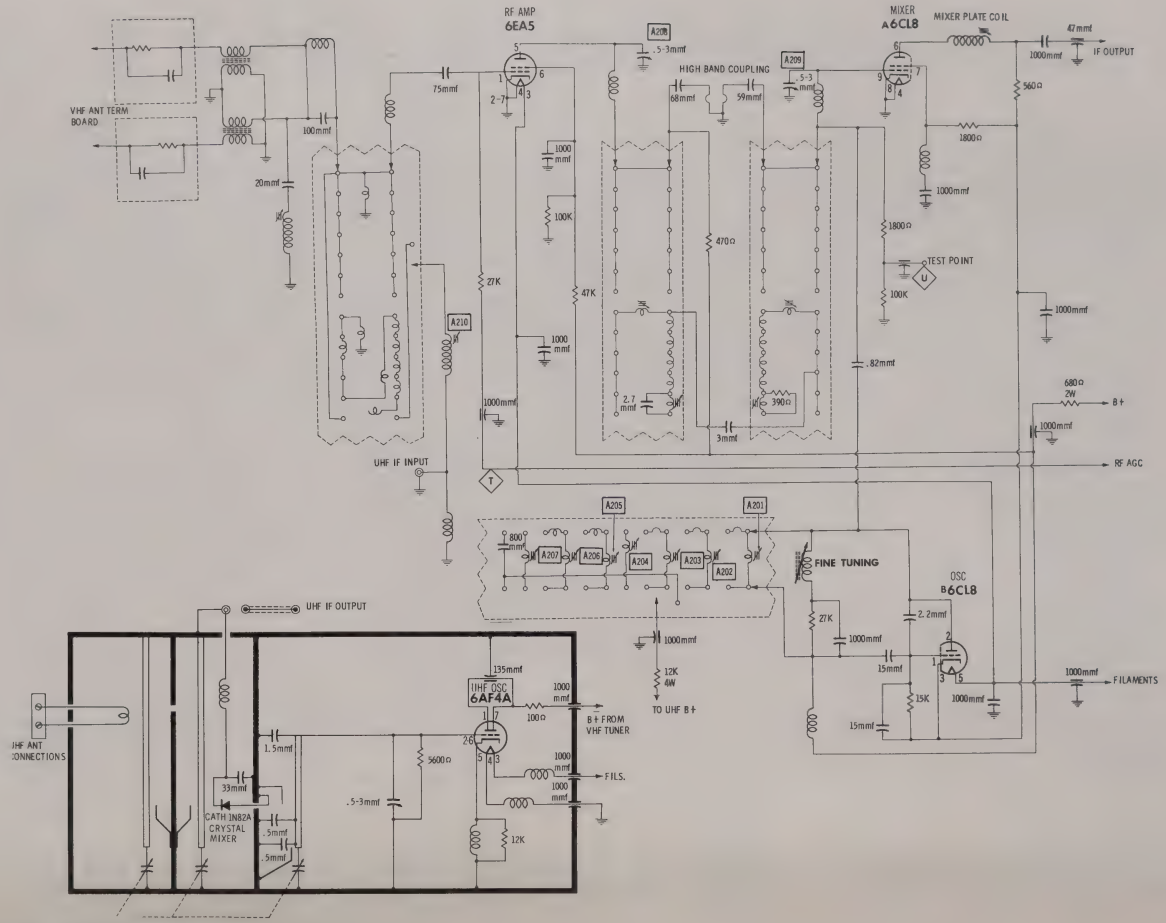


FIG.2



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UHF TUNER 472V034H02

VHF TUNER with UHF Provisions 470V063H02

TUNER ALIGNMENT INSTRUCTIONS

470V063H02

VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range. Set the Channel Selector to the highest channel operating in the area and adjust the appropriate slug for best picture and sound. The slug for each channel operating in the area must be adjusted in a descending order from the highest to the lowest: A201 for channels 13 and 12, A202 for channels 11 and 10, A203 for channels 9 and 8, A204 for channel 7, A205 for channels 6 and 5, A206 for channels 4 and 3, and A207 for channel 2.
If difficulty is experienced in adjusting channels 12, 10, 8, 5 or 3, adjust the correct coil for that channel by compressing or expanding coil turns for best picture and sound.

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 2.5 volt bias supply to point ⏚ . Positive to chassis.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point ⏚ . Low side to chassis.	A208, A209	Adjust A208 and A209 for response similar to Fig. 201 with markers on shoulders of curve.
	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustment of A208 and A209 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
	207MC	205.25MC 209.75MC	12			
	201MC	199.25MC 203.75MC	11			
	189MC	187.25MC 191.75MC	9			
	183MC	181.25MC 185.75MC	8			
	177MC	175.25MC 179.75MC	7			
	85MC	83.25MC 87.75MC	6			
	79MC	77.25MC 81.75MC	5			
	69MC	67.25MC 71.75MC	4			
	63MC	61.25MC 65.75MC	3			
	57MC	55.25MC 59.75MC	2			

UHF IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the negative lead of a 2.5 volt bias supply to point ⏚ . Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Across UHF antenna terminals thru matching network Fig. 202. Loosely couple a separate generator into IF section set to 45.75MC. Adjust UHF Fine Tuning until the two markers zero beat.	707MC (10MC Swp.)	705.25MC	53	Vert. Amp. thru 47K across Video Detector Load.	A210	Adjust for maximum gain and symmetry of response similar to Fig. 203 with markers as shown.

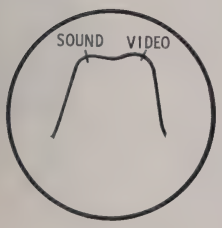


FIG. 201

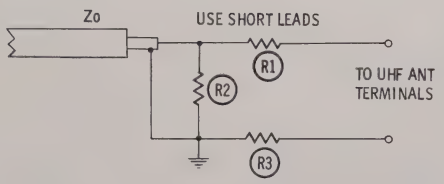


FIG. 202

Zo	R1	R2	R3
52Ω	120Ω	56Ω	150Ω
72Ω	110Ω	85Ω	150Ω

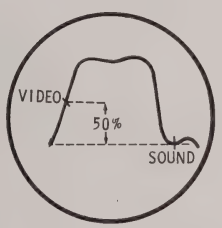
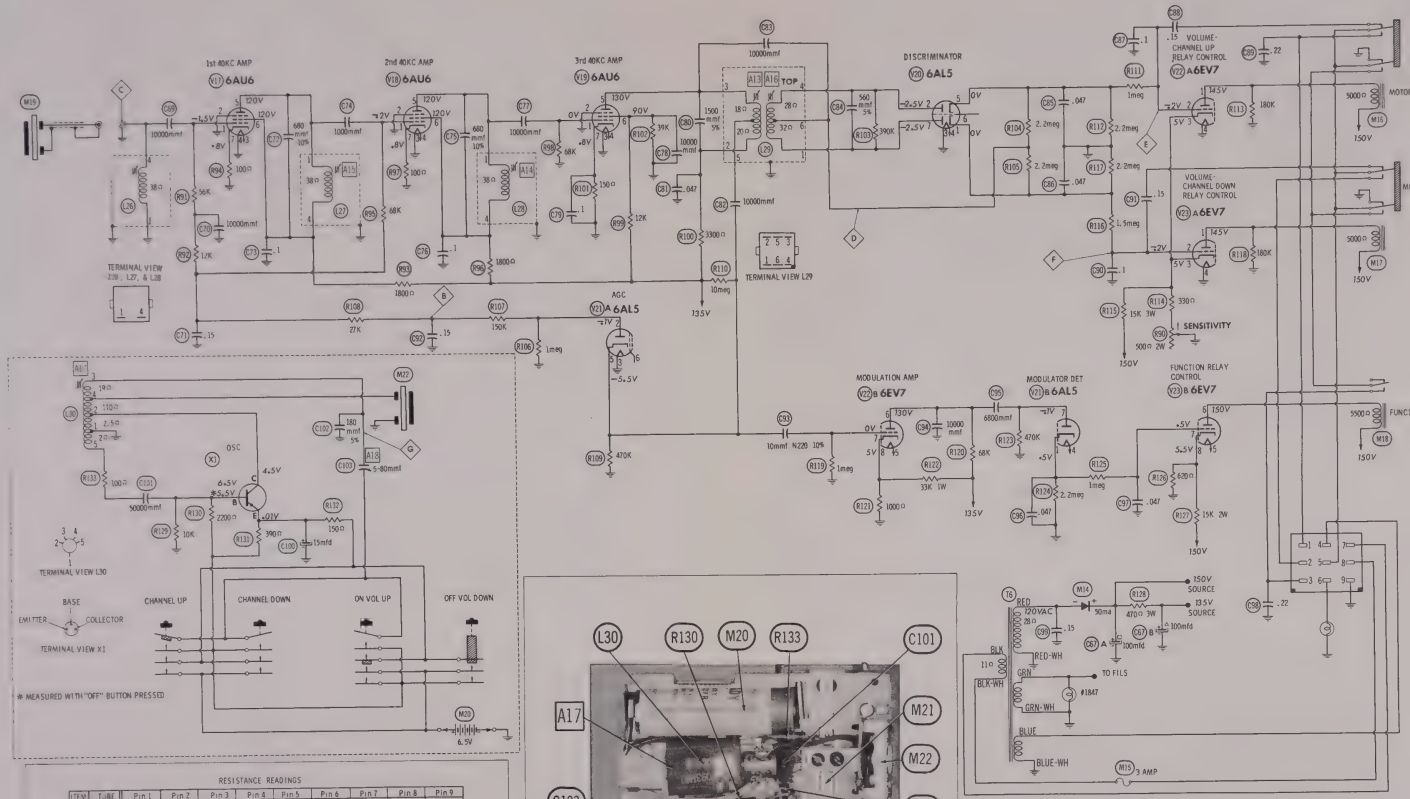


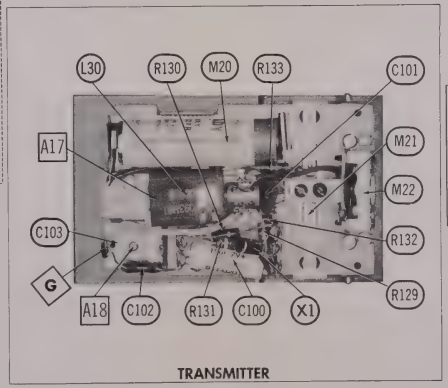
FIG. 203



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V17	6AU6	1.2meg	0Ω	.1Ω	0Ω	††2300Ω	††2300Ω	100Ω		
V18	6AU6	1.2meg	0Ω	0Ω	.1Ω	††2300Ω	††2300Ω	100Ω		
V19	6AU6	68K	0Ω	0Ω	.1Ω	††3800Ω	††10K	150Ω		
V20	6AL5	1.5meg	2.2meg	0Ω	.1Ω	1.5meg	NC	2.2meg		
V21	6AL5	2.2meg	1meg	0Ω	.1Ω	470K	NC	470K		
V22	6EV7	††5000Ω	3meg	• 500Ω	0Ω	.1Ω	††68K	1meg	1000Ω	NC
V23	6EV7	†† 5000Ω	3meg	• 500Ω	0Ω	.1Ω	††5500Ω	3.2meg	620Ω	NC

ALL TRANSISTOR MEASUREMENTS MADE WITH CHANNEL BUTTON PRESSED UNLESS OTHERWISE DESIGNATED.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
RESISTANCE MEASUREMENTS FOR X1 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
†† MEASURED FROM OUTPUT OF M14.
NC NO CONNECTION



TRANSMITTER

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REMOTE CONTROL RECEIVER (CH. V-2405-1) & TRANSMITTER (CH. V-2406-1)

REMOTE CONTROL ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: Al thru A4 ..... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

REMOTE CONTROL RECEIVER ALIGNMENT

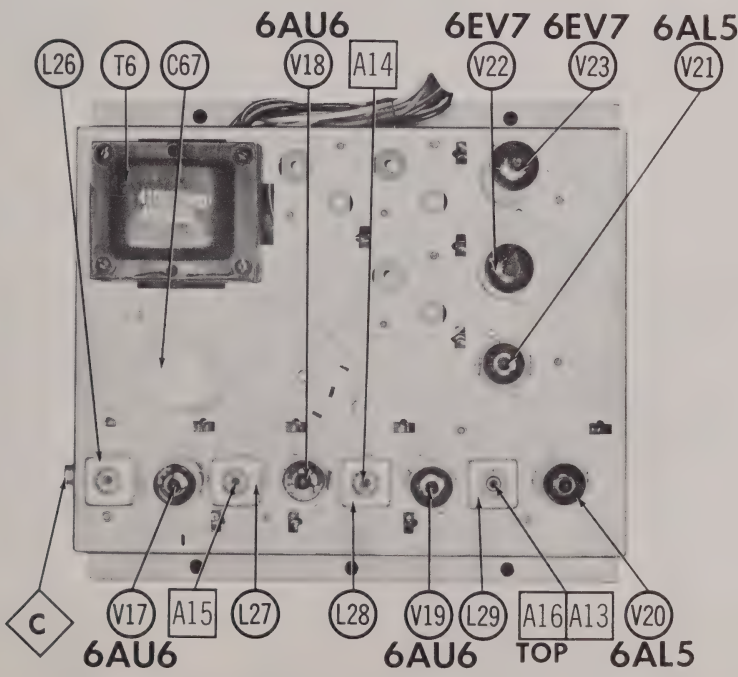
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT VTVM	ADJUST	REMARKS
1.	High side to point Ⓒ. Common to chassis. (Unplug transducer.)	40KC (Unmod.)	DC probe thru 1meg to point Ⓓ. Common to chassis.	A13, A14, A15	Adjust for maximum deflection. Use peak with slug nearest chassis.
2.	"	"	DC probe to point Ⓔ. Common to point Ⓕ.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A5 ..... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A6 ..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989,
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538 9291

REMOTE CONTROL TRANSMITTER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT SCOPE	ADJUST	REMARKS
1.	Across horizontal terminals of scope.	41KC	Vert. Amp. thru low capacity probe point Ⓖ. Low side to chassis.	A17	Depress "Channel Down" button and adjust vertical and horizontal gain controls of scope for equal deflection. Adjust A17 until the Lissajous pattern is a stationary oval, leaning either to the left or to the right.
2.	"	39KC	"	A18	Depress "Channel Up" button and adjust for stationary oval leaning to the left or right.



REMOTE CONTROL RECEIVER—TOP VIEW

REMOTE CONTROL RECEIVER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA)
V17	1st 40KC Amp.	6AU6
V18	2nd 40KC Amp.	6AU6
V19	3rd 40KC Amp.	6AU6
V20	Discriminator	6AL5
V21	AGC - Modulation Det.	6AL5
V22	Volume - Channel Up - Relay Control - Modulation Amp.	6EV7
V23	Volume - Channel Down - Function Relay Control Amp	6EV7

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP	RATING VOLT	Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C87A	≡100	200	218V025H38	AFH2-24-21		FP129-1	TMD-1550	TVLS-3464.1*	
B	≡100	200				TC1265	TD-100-200		
C88	90	50NP	218V025H43	XA10001	BR10015	TC496 †		TVANS-1310.1*	

* Not normally in distributor' stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C69	10000			BPD-01	DD-103	BYA10B	CCD-103	B-110	5HK-S10
C70	10000			BPD-01	DD-103	BYA10B	CCD-103	B-110	5HK-S10
C71	.15	200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C72	680	10%		DH-680	DD-681	5RS7S6	CCD-681	GP368	10TS-T68
C73	.1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C74	1000			BPD-001	DD-102	BYA102E	CCD-102	B-210	5HK-D10
C75	680	10%		DH-680	DD-681	5RS7S6	CCD-681	GP368	10TS-T68
C76	.1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C77	10000			BPD-01	DD-103	BYA10B	CCD-103	B-110	5HK-S10
C78	10000			BPD-01	DD-103	BYA10B	CCD-103	B-110	5HK-S10
C79	.1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C80	1500	5%		1464-0015		1RS1S5	CM-19B-152J	MCE456	MS-215
C81	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C82	10000			BPD-01	DD-103	BYA10B	CCD-103	B-110	5HK-S10
C83	10000			BPD-01	DD-103	BYA10B	CCD-103	B-110	5HK-S10
C84	560	5%		[illegible]		5RS7S6	CM-19B-561J	MCJ347	MS-356
C85	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C86	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C87	.1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C88	.15	200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C89	.33	600V		P488N-33		CUB4P33	4DP-5-334	GEM-6133	4TM-P33
C90	.1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C91	.15	200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C92	.15	200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C93	10	W250	10% #215V011A00				*		10TCR-Q10
C94	[illegible]			BPD-01	DD-103	BYA10B	CCD-103	B-110	5HK-S10
C95	6800			BPD-0068	DD-682	BYA10G68	CCD-682	B-368	5HK-D68
C96	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C97	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C98	.22	400V		P488N-22		CUB4P23	4DP-5-224	GEM-6023	4TM-P23
C99	.15	600V		P668N-15		CUB6P15	6DP-5-154	GEM-6015	6TM-P15

◊ Westinghouse Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS - IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R30	500Ω	2(WW)	V-11345-2	WN-501	39-500	112-500	FL-500	Sensitivity

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R91	56K			
R92	12K			
R93	1800Ω			
R94	100Ω			
R95	68K			
R96	1800Ω			
R97	100Ω			
R98	68K			
R99	12K			
R100	3300Ω			
R101	150Ω			
R102	39K			
R103	390K			
R104	2.2meg			
R105	2.2meg			
R106	1meg			
R107	150K			
R108	27K			
R109	470K			
R110	10meg			
R111	1meg			
R112	2.2meg			
R113	180K			
R114	330Ω			
R115	15K 3W	PW3-15K	3G-15K	#251V014H23
R116	1-5meg			
R117	2.2meg			
R118	180K			
R119	1meg			
R120	68K			
R121	4000Ω			
R122	33K 1W			
R123	470K			
R124	2.2meg			
R125	1meg			
R126	6200Ω			
R127	15K 2W			
R128	470Ω 3W	PW3-470	3G-470	#251V014H19

◊ Westinghouse Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L26	1st 40KC	230V081H01					
L27	2nd 40KC	230V081H01					
L28	3rd 40KC	230V081H01					
L29	Discriminator	235V055H01					

TRANSFORMER (POWER)

ITEM No.	RATING				Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2		REPLACEMENT DATA					
T6	117V @ .7A	120V @ .050A DC	6.3V @ 2.5A		410V023H01					
	SEC. 3	SEC. 4	SEC. 5							
	24V @ 1.8A AC									

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Westinghouse PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M14	.050A	295V006H03	1N1763	40H	SR500	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Westinghouse PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M15	3AG	3/4A 250V S/B P/T	758V003H17		315. 750 (3AG 3/4A 250V S/B P/T)		MDV 3/4	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M16	Relay	753V020H01	Motor Forward
M17	Relay	753V020H01	Motor Reverse
M18	Relay	753V019H01	Function Selector
M19	Transducer	753V014H01	

REMOTE CONTROL TRANSMITTER PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X2	*	Osc.				PNP

* Part #297V027H01 (Alternate Westinghouse Type #01A27).

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C100	15	7	218V012H21	PTT-10015	NLW15-12	TT10X15	MLV15-10	TE-1116	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C101	50000		BPD-05	DD-503	22S5T18	CM-19B-18J 462	GP160	5HK-S50
C102	180 5%		1469-00018	TCZ-180			TCZ-180	MS-318
C103	5-80	#217V506H01						

◊ Westinghouse Part Number

RESISTORS

All wattages 1/2 watt, or less, unless otherwise fisted.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R129	10K			
R130	2200Ω			
R131	390Ω			
R132	150Ω			
R133	100Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L30	Osc.	230V093H01					

BATTERIES

ITEM No.	VOLTAGE	Westinghouse PART No.	REPLACEMENT DATA BURGESS "A"	BURGESS "B"	EVEREADY "A"	EVEREADY "B"	MALLORY "A"	MALLORY "B"	NOTES
M20	6.5					E185		TR-185R	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M21	Switch	756V053H01	Function Selector
M22	Transducer	753V018H01	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODEL NO. H-K4410	H-K4411	H-K4412	H-K4413	H-K4511	H-K4512	H-K4513	H-K4514	H-K4515	H-K4910	H-K4910U	H-K4911	H-K4911U	H-K4912	H-K4912U	H-K4913	H-K4913U
Safety Glass-Tinted	630V008H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mask	610V021H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bar- Power Tuning Channel Selector	558V257H01	X	X	X	X	X	X	X										
Knob-VHF Channel Selector	559V090H01										X		X		X		X	
Knob-VHF Channel Selector	559V069H01											X		X		X		X
Knob- VHF Channel Selector Rear, Motor Drive	550V129H01	X	X	X	X	X	X	X	X	X								
Knob-UHF Channel Indicator	550V128H01										X		X		X		X	
Knob-UHF Channel Selector	550V127H01										X		X		X		X	
Knob- Fine Tuning and Master Power	550V119H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob- Volume, Contrast	550V123H04										X	X	X	X	X	X	X	X
Knob- Vertical Hold Volume, Brightness	550V123H04	X	X	X	X	X	X	X	X	X								
Knob-Rear On-Off, Volume	550V124H04	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob- Rear Contrast Horizontal Hold	550V124H03	X	X	X	X	X	X	X	X	X								
Knob- Rear Brightness Horizontal Hold	550V124H03										X	X	X	X	X	X	X	X
Pushbutton- Remote Transmitter	550V121H01	X	X	X	X	X	X	X	X	X								
Cabinet- Remote Transmitter	550V056H01	X	X	X	X	X	X	X	X	X								
Door-Cabinet	690V024H71							X										
Door-Cabinet	690V024H72				X													
Door-Cabinet	690V024H73					X												
Door-Cabinet	690V024H74						X											

DESCRIPTION	PART NO.	MODEL NO.
Cabinet-TV	516V202H01	H-K4410
Cabinet-TV	516V203H01	H-K4411
Cabinet-TV	516V204H01	H-K4412
Cabinet-TV	516V205H01	H-K4413
Cabinet-TV	516V207H01	H-K4511
Cabinet-TV	516V208H01	H-K4512
Cabinet-TV	516V209H01	H-K4513

DESCRIPTION	PART NO.	MODEL NO.
Cabinet-TV	516V206H01	H-K4514
Cabinet-TV	516V198H01	H-K4910, U
Cabinet-TV	516V199H01	H-K4911, U
Cabinet-TV	516V200H01	H-K4912, U
Cabinet-TV	516V201H01	H-K4913, U
Cabinet-TV	516V206H02	H-K4515

WESTINGHOUSE CHASSIS V-2389-1, -2, V-2405-1, V-2406-1

FOLDER 2

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC)	ITEM No.	USE	TYPE (RAYTHEON / SYLVANIA)
V1	1st Video IF Amp.	6BZ6	V9	Sound Amp. - Sync Amp. - Noise Canceller	6FV8
V2	2nd Video IF Amp.	6BZ6	V10	Vert. Mult. - Vert. Output	12DT5
V3	3rd Video IF Amp.	6DK6	V11	Horiz. Mult.	6CG7
V4	Video Output - Sync Sep.	6EB8	V12	Horiz. Output	12DQ6B
V5	AGC Keying	6BZ6	V13	Damper	12D4 (12AX4GTB) *
V6	Sound IF Amp. - Vert. Mult.	6FV8	V14	HV Rectifier	1G3GT/1B3GT (1G3GT) *
V7	Audio Detector	6DT6	V15	LV Rectifier	5U4GB
V8	Audio Output	6BQ5			

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: Westinghouse PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V16	23FP4					① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲100	350	218V046H01	AFH4-56-90	D0473	FP420.29	TMQ-4283	TVL-4625	
B	■40	350							
C	▲4	350							
D	100	50							
C2A	▲100	350	218V045H01	AFH4-57-55	D0479.2	FP419.89	TMQ-4310	TVL-3842.6 TVA-1718	
B	■30	350							
C	▲10	350							
D	40	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	4700				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C4	.47	200V			P288N-47		CUB2S47	2DP-5-474	GEM-2047	2TM-P47
C5	.033	200V			P288N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C6	.47	200V			P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47
C7	1000	1400V			DAC-2	DD30-102	HVB20D1	3CCD-102	UAC-210	BL-D10
C8	800				BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C9	680				BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C10	680				BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C11	2.2		5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C12	68	NPO	10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C13	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C14	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	680				BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C16	560				DI-560	DD-561	L10T56	CCD-561	B-356	10TS-T56
C17	1500				BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C18	680				BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C19	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	560				DI-560	DD-561	L10T56	CCD-561	B-356	10TS-T56
C21	4.7	N750	±.25mmf		N750-DI 5.0	DTN-5	C10V5U	CCTN-050	CN7-547	10TCU-V50
C22	10	NPO	5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C23	100	N220		#215V011A01				*		10TCR-T10
C24	.047	200V			P288N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	2TM-S47
C25	56	N220	10%	#RICC52R2G560K				*		10TCR-Q56
C26	.22	400V			P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C27	10000	2000V							2HV-110	BL-S10
C28	.22	400V			P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C29	4.7		10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C30	4.7		10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C31	4700				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C32	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C33	4700				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C34	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C36	6800				BPD-0068	DD-682	BYA10D68	CCD-682	B-268	5HK-D68
C37	470				BPD-00047	DD-471	BYA10T47	CCD-681	B-347	10TS-T47
C38	2200				BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C39	.0047	600V			P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C40	.01	600V			P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C41	2.2mfd	3V				UK-225				HY-150
C42	3300				BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C43	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	150				DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C46	.0027	400V			P488N-003	DD-272	DPMS6D27	6DP-1-272	GEM-623	6PS-D27
C47	.22	600V			P688N-22		CUB6P22	6DP-5-224	GEM-6022	6TM-P22
C48	.033	600V			P688N-033	DD-302	CUB6S33	6DP-3-333	GEM-6133	6TM-S33
C49	.033	400V			P488N-033	DD-302	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C50	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C51	.022	400V			P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C52	.001	600V			P688N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D10

TV PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C53	.047	600V		P488N-047	DD-503	CUB8347	6DP-3-473	GEM-4147	67M-S47
C54	.15	200V		P288N-15		CUB3P15	3DP-3-154	GEM-3015	2TM$_{8}$P15
C55	10000			HPI-25	DD-103	BYA10S	CCD-103	B-110	5HK-S10
C56	}	200V		P288N-1	DP-104	CUB2P1	2DP-3-104	GEM-301	2TM-P10
C57	19-160		#217V505H09				463		
C58	68	NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C59	1000	10%		1469-001		5HS-DI	CM-19D-102K	MCD-255	MS-2i
C60	10000			HPD-01	DD-103	BYA10S	CCD-103	B-110	5HK-S10
C61	.047	400V		P468N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C62	.0047	600V		P688N-0047	DS-472	CUB3S47	6DP-1-472	GEM-6247	6TM-D47
C63	.047	600V		P688N-047	UD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C64	170	5000V N4200 5%	#215V300H67						
C65	1000			HPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C66	.033	600V		P688N-033	UD-303	CUB6S33	6DP-3-333	GEM-6133	6TM-S33

* Westinghouse Part Number.
• Not normally is distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	}	270V075H02					Volume Note 1
B	Switch							Power Off-On
R2A	200K	}	270V069H05	F1-33	†RTV-701	†QJ-1262	*UE4119	Brightness
B	800Ω			R2-5				Contrast
R3A	40K	}	270V069H06	F1-30	RTV-702	†QJ-1266	*UE4118	Horiz. Hold
B	2meg			H2-67				Vert. Hold
R4	5meg	}	270V038H06	TT-57	B47-5meg-S	HLC5	PTA56L	Height
R5A	500K	}	270V038H05	TT-59	B47-500K-S	BH-133	PTA55L	Vert. Linearity
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

Note 1. Chassis V-2389-1, -2 use Part #270V05IH03.
† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: BH-129, PIT-031 (Panel)
BH-105, RG-111 (Rear)
‡ "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: BH-125, PIT-031 (Panel)
(Not available as a factory assembled unit). BH-139, RG-111 (Rear)
■ "STA-LOC" Equivalent: FA251, RU13S, C6937A, IS437.
▲ "STA-LOC" Equivalent: FA753L, RU36L, C6937A, IS437.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R6	18meg			
R7	330K			
R8	1.2meg			
R9	1.8meg			
R10	15K			
R11	270Ω			
R12	47Ω			
R13	100K			
R14	120K			
R15	470Ω			
R16	12Ω			
R17	10K 3W	PW3-10K	3G-10K	#251V014H16
R18	150K			
R19	47K 1W			
R20	1530			
R21	24000			
R22	15000			
R23	10K			
R24	1meg			
R25	56300			
R26	54000 TW	PW7-5400	7G-5400	#251V014H15
R27	27K 2W			
R28	188K			
R29	100K			
R30	120K			
R31	12K			
R32	470K			
R33	100K 1W			
R34	12K			
R35	470K			
R36	470K			
R37	180K			
R38	560K			
R39	47K 1W			
R40	820Ω			
R41	10000			
R42	2700			
R43	22K			
R44	47000 1W			
R45	10K 2W			
R46	15K			
R47	68K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No	WORKMAN TV PART No.	REMARKS
R48	4700Ω			
R49	18K			
R50	1.5meg			
R51	68K 2W			
R52	62000			
R53	2.2meg			
R54	220K			
R55	150K			
R56	150K			
R57	2.2meg 1W			
R58	1.2meg			
R59	82K			
R60	22K 1W			
R61	27K			
R62	150Ω			
R63	1.8meg			
R64	82K			
R65	220K 1W			
R66	560Ω			
R67	560Ω			
R68	8Ω (Cold)			#680V01IH08
R69	8200Ω			
R70	680K			
R71	47K			
R72	47K 1W			
R73	82K			
R74	10000 1W			
R75	180K			
R76	56K			
R77	68Ω			
R78	150Ω			
R79	1meg			
R80	18K 2W			
R81	4700Ω 2W			
R82	39K 1W			
R83	4.7Ω			
R84	470Ω 3W	PW3-470	3G-470	#251V020H57
R85	470Ω 3W	PW3-470	3G-470	#251V020H57
R86	330K			
R87	1.1Ω 2W			
R88	10000			
R89	1meg			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Vert Integrator	330mmf, 470mmf, 39K, 47K	219V037H01	
K2	Horiz AFC Network	47mmf, 56mmf, 390mmf, 390mmf, 680mmf, 10K, 22K, 560K, 680K	219V028H03	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	41.25MC Trap	230V069H01					
L2	47.25MC Trap	230V076H02					
L3	1st Video IF	235V049H01					
L4	47.25MC Trap	230V076H01					
L5	2nd Video IF	235V048H01					
L6	39.75MC Trap	230V030H01					
L7	3rd Video IF	235V049H01					
L8	4th Video IF	235V048H02					
L9	RF Choke (1.1uh)	230V019H13	BC-561	4602	RTC-8515	T855	
L10	RF Choke (14uh)	230V019H15		4624	RTC-8524	T862	
L11	RF Choke (14uh)	230V019H15		4624	RTC-8524	T862	
L12	RF Choke (4.7uh)	230V019H04	SW-631	4609	RTC-8519	T977	
L13	Peaking (330uh)	230V034H09	TV-200	6132	RTC-8577	T349	
L14	Peaking (250uh)	230V034H13	TV-185	6181	RTC-8598	T346	
L15	4.5MC Trap	230V030H02					
L16	Peaking (140uh)	230V034H03	TV-196	6120	RTC-8575	T343	
L17	Peaking (500uh)	230V034H04	TV-188	6174	RTC-8592	T353	
L18	Peaking (330uh)	230V034H09	TV-200	6132	RTC-8577	T349	
L19	1st Sound IF	230V030H07					
L20	2nd Sound IF	235V046H01					
L21	Quadrature	230V031H01					
L22	RF Choke (14uh)	230V019H10		4624	RTC-8524	T862	
L23	RF Choke (14uh)	230V019H10		4624	RTC-8524	T862	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	Merit PART No.	Miller PART No	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L24	Horiz. Stabilizer	230V032H01					HS-16		

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES	INDUCTANCE (0 CURRENT 1000 ^)	REPLACEMENT DATA: Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L25	.280A	20Ω	.5 Hy.	430V064H01		C-2343		C-27X	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI	SEC 1	SEC 2	REPLACEMENT DATA: Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ② 1.85A	560VCT ③ .380A DC	5V ④ 3A	410V02H01				R-12BC	
	SEC 3	SEC 4	SEC 5						
	12.6VCT ⑤ 4.4A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	430V039H02			VO-108①②		A-108X	
	Alt. Vert. Output	430V039H01			VO-108①③		A-108X	
T3	Yoke (Horiz. 30MH)	490V008H02 ③		TPCM-1834	DY-46A	Y-53	Y-62 &	
	(1147) (Vert. 32MH)			④⑤⑥	⑤⑥	④⑤⑦	NW1 ④	
	Rear Cover and Centering Device	781V396H01						
	Yoke Clamp	768V014H03						
T4	Horiz. Output	493V006H01				FLY-96 *	D-608 *	

① Drill new mounting holes.
② Remove green lead of yoke from ground. Connect blue to plate; red to junction of capacitors C54 and C57 and yoke terminal; yellow to B+ and yoke terminal.
③ Less leads and vertical damping resistors.
④ Connect yoke terminal #3 to horiz. output transformer terminal #4; yoke terminals #1 and #3 to horiz. output terminal #6; yoke terminal #7 to junction of capacitors C52 and C53 and resistor R82.
⑤ Remove yoke plug. Connect yoke terminal #3 to horiz. output transformer terminal #4; yoke terminals #2 and #7 to horiz. output transformer terminal #6; yoke terminal #1 to junction of capacitors C62 and C63 and resistor R82.
⑥ Requires new rear cover and centering device.
⑦ Remove 27mmf capacitor across horiz. yoke if necessary.
⑧ Use original yoke damping network.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
2				6	6
1				4	5
4				4	4
6				T	T
3				3	3
T				2	2
5				1	1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	8600Ω	6-8Ω	430V083H01	A-2901	A-3849	24B06	S-53X	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V C IMP.	REPLACEMENT DATA: Westinghouse PART No.	QUAM PART No.	NOTES
SP1	8"	PM	6-8Ω	570V043H03	8A3125.5	
SP2	5"	PM	10-12Ω	570V047H02	5A1Z12	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Westinghouse PART No. FUSE	Westinghouse PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	N	3|A 125V 8/3	758V001H07	758V002H07	33303.5 (N 3|A 250V 8/B)	346018	N 3½	HN 3½ to 5
M2	1"	length of #26 wire						
M3	1"	length of #26 wire						

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: Westinghouse PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M4		296V004H01	8GC1			Dual Selenium Diode, Common Cathode Type
M5	1N295 or 1N67A	296V006H01		1N295 1N67A	1N295 1N67A	Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M6	Tuner	470V064H01	STANDARD COIL REPLACEMENT #GG-4230A, VHF, Chassis V-2389-1 and V-2389-3
	Tuner	470V063H02	VHF with UHF Provisions, Chassis V-2389-2
	Tuner	472V034H03	UHF, Chassis V-2389-2
M7	Switch	778V150H01	Tone, Bass (Slide Type SPDT)
M8	Switch	778V150H01	Tone, Treble (Slide Type SPDT)
M9	Switch	756V044H01	Master Off-On (Ch. V-2389-3)
M10	Switch	756V040H01	Push-Bar (Power Tuning)
M11	Switch	756V041H01	Hold, Motor Drive (Power Tuning)
M12	Motor	753V016H01	Power Tuning (Includes Direction Switch)
M13	Solenoid	753V009H01	Transfer (Power Tuning)
	Motor Drive Assy.	787V178H02	Complete, Includes M10, M11, M12 and M13.
	Shaft & Gear Assy.	787V228H01	Volume Control Drive

WIRING DATA

High Voltage Lead	Use BELDEN No. 8969
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8528 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8463 (Round) - 5 Conductor 8468 (Round) - 6 Conductor

VHF TUNER PARTS LIST AND DESCRIPTIONS

470V064H01

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	◆ GENERAL ELECTRIC ◆			RAYTHEON ◆ SYLVANIA ◆	
V201	RF Amp.	6ER5GG	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30 7%	#690V004H18						
C206	28		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1.8-7	#690V004H97		829-7				
C209	100 5%		EF-0001	MFT-100				
C210	.5-3			829-3		CV-1	CT565	
C211	33		DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33
C212	.5-3			829-3		CV-1	CT565	
C213	.82 10%	#690V026H15						
C214	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C215	47 N750 5%			DTN-47	C10Q47U		CN7-447	10TCU-Q47
C216	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C217	6.8		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C218	18 N229	#690V013H36				*		10TCR-Q18
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220	1000		EF-001	MFT-1000		CCF-102	CT280A	
C221	1000		EF-001	MFT-1000		CCF-102	CT280A	

Westinghouse Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	47K				R206	22K			
R202	1000Ω				R207	220K			
R203	5600Ω 5W	PW5-5600	5W-SQ-5600	#690V004H99	R208	4700Ω			
R204	2700Ω				R209	10K			
R205	1000Ω								

Westinghouse Part Number.

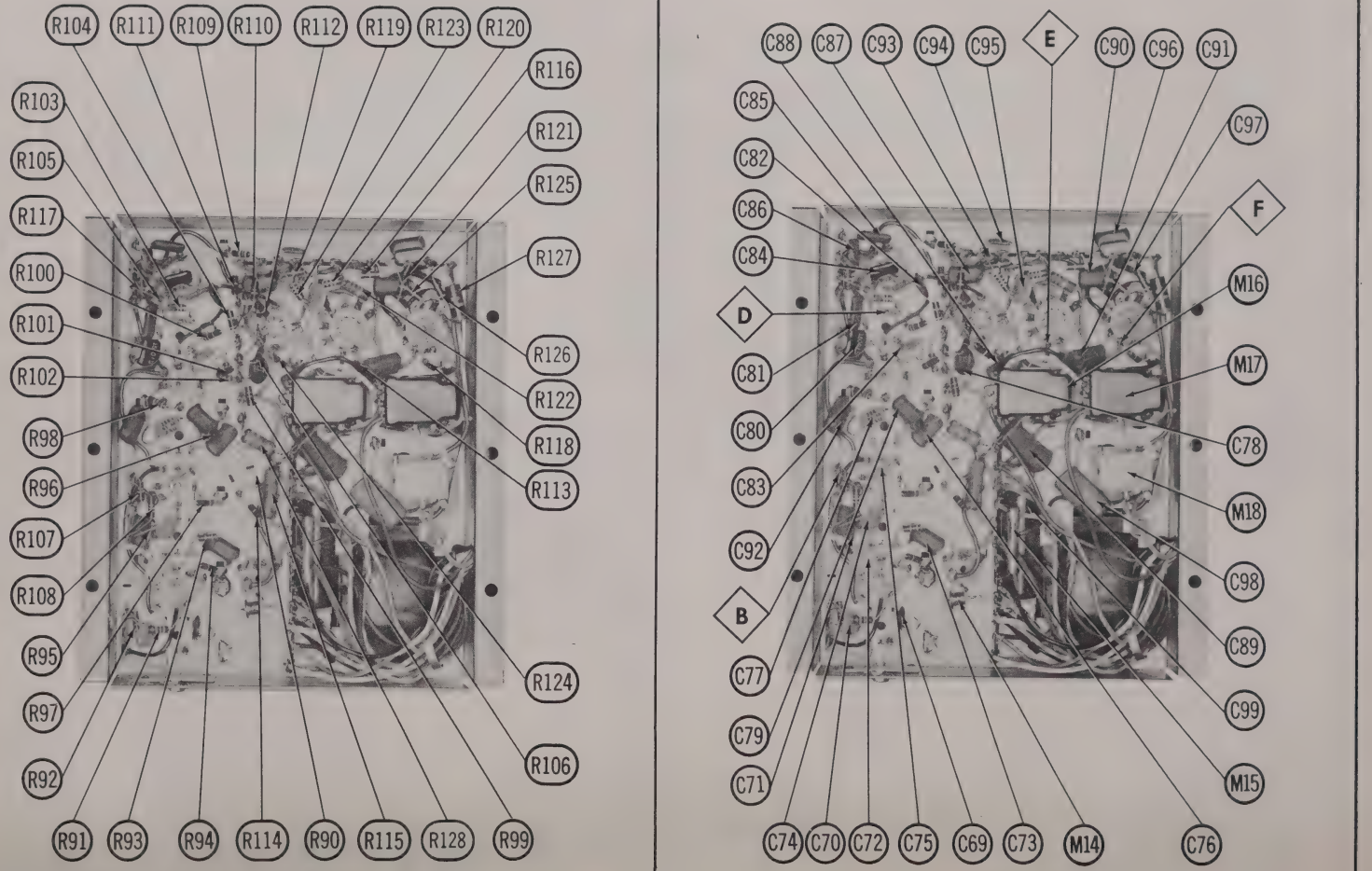
COILS (RF-IF)

ITEM No.	USE	Westinghouse PART No.	NOTES
L201	Ant. Trans. Assy.	690V026H14	
L202A	Ant., RF, Mixer, Osc.	690V026H02	Channel 2
B	"	690V026H03	Channel 3
C	"	690V026H04	Channel 4
D	"	690V026H05	Channel 5
E	"	690V026H06	Channel 6
F	"	690V026H07	Channel 7
G	"	690V026H08	Channel 8

ITEM No.	USE	Westinghouse PART No.	NOTES
L202H	Ant., RF, Mixer, Osc.	690V026H09	Channel 9
I	"	690V026H10	Channel 10
J	"	690V026H11	Channel 11
K	"	690V026H12	Channel 12
L	"	690V026H13	Channel 13
L203	Fine Tuning	690V026H01 *	*Core #690V004H91
L204	Mixer Plate	690V026H00	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
	Spring	690V004H94	Fine Tuning Arm
	Spring	690V004H95	Retaining, Drum (Front)
	Spring	690V004H96	Retaining, Drum (Rear)



REMOTE CONTROL RECEIVER-BOTTOM VIEW

TUNER ALIGNMENT INSTRUCTIONS

470V064H01

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A201, A202 and A203.....GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525
A204 thru A215.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

RF AND MIXER ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis	A201 A202 A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			85MC	83.25MC 87.75MC	6			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

FIG. 201

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across video det. load.	A204	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

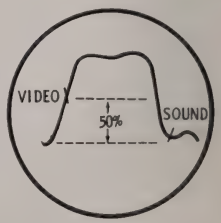
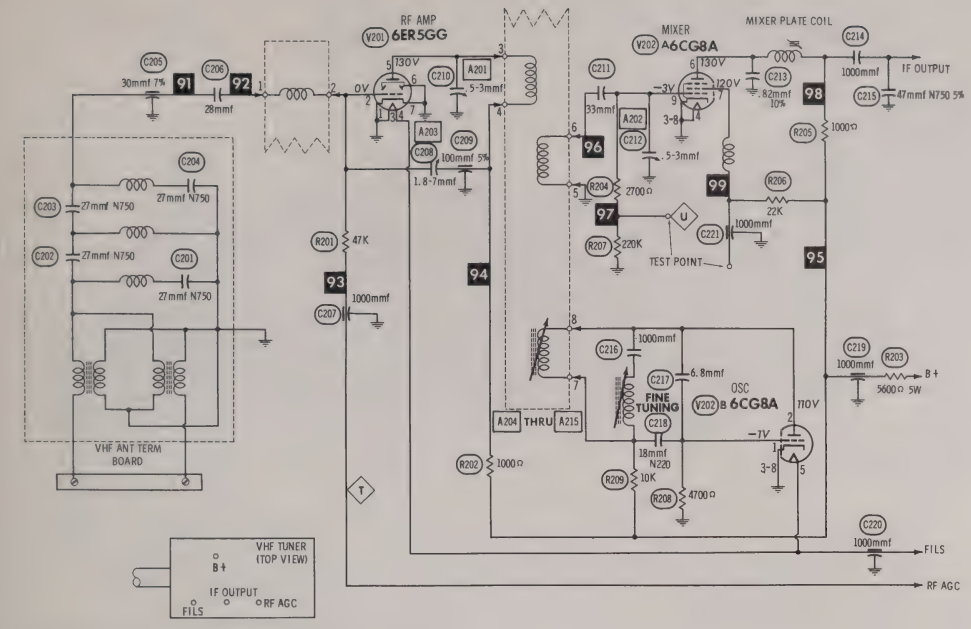


FIG. 202



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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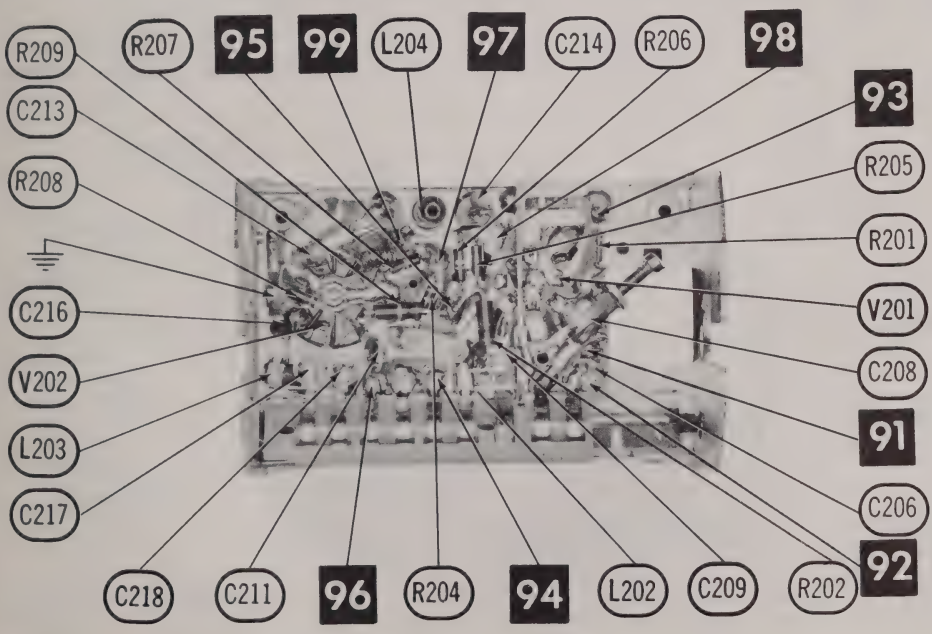
VHF TUNER 470V064H01



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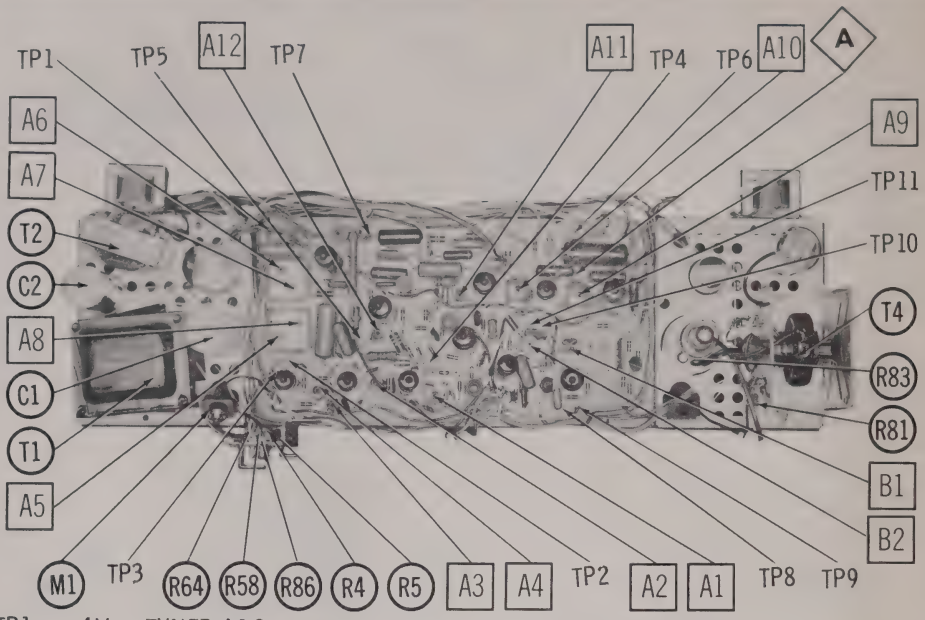
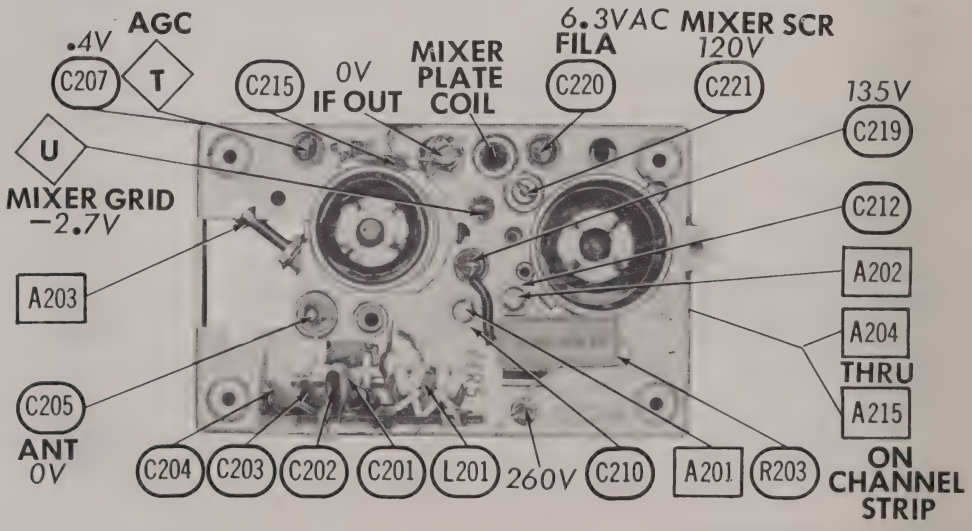
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER 470V064H01 - BOTTOM VIEW



TP1	.4V	TUNER AGC
TP2	0V	IF AGC
TP3	0V	1st IF GRID
TP4	0V	VIDEO DET OUTPUT
TP5	40V	CATHODE PIX TUBE
TP6	0V	AUDIO DET OUTPUT
TP7		VERT OUTPUT PLATE
TP8	-.2V	HORIZ MULT CONTROL GRID CIRCUIT
TP9	-2V	HORIZ MULT GRID
TP10	255V	HORIZ MULT STABILIZING COIL
TP11	255V	HORIZ MULT B+

TV CHASSIS - TOP VIEW



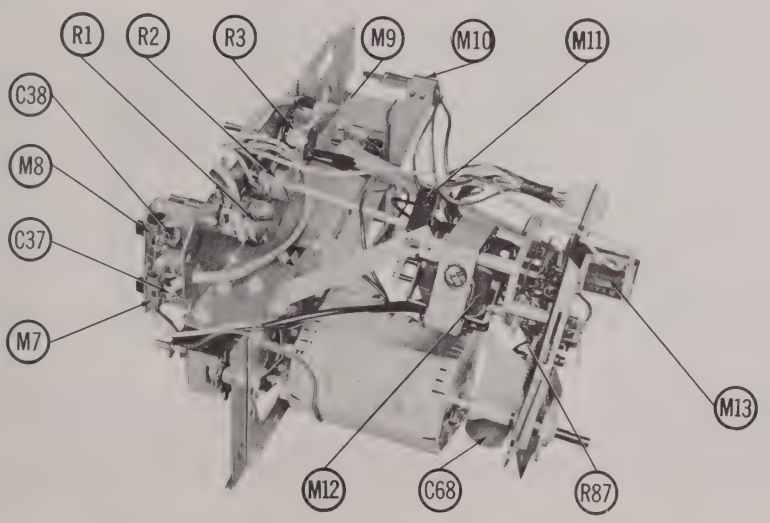
VHF TUNER 470V064H01 - TOP VIEW

TV RESISTANCE MEASUREMENTS

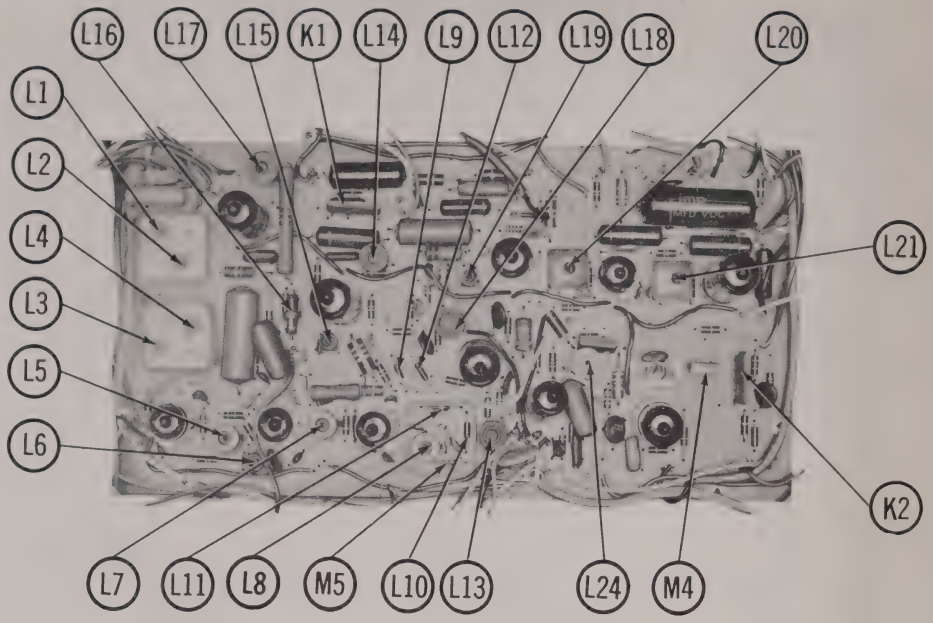
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	335K	47Ω	.1Ω	0Ω	▪280Ω	▪280Ω	0Ω		
V2	6BZ6	55K	INF	.1Ω	0Ω	†490Ω	†490Ω	▪12Ω		
V3	6DK6	.1Ω	150Ω	.1Ω	0Ω	†10K	†40K	0Ω		
V4	6EB8	0Ω	2.4meg	†100K	0Ω	.1Ω	●35Ω	1meg	†27K	†5400Ω
V5	6BZ6	†37K	†15K	.1Ω	0Ω	2.1meg	†20Ω	†15K		
V6	6FV8	1.6meg	● †6meg	0Ω	.1Ω	0Ω	†30K	†30K	0Ω	470K
V7	6DT6	4Ω	820Ω	.1Ω	0Ω	¶950K	†47K	560K		
V8	6BQ5	NC	●20K	270Ω	0Ω	.1Ω	NC	†1000Ω	NC	†1500Ω
V9	6FV8	3.9meg	†37K	6200Ω	0Ω	.1Ω	†15K	†25K	0Ω	1500Ω
V10	12DT5	†490Ω	NC	NC	.1Ω	.1Ω	●1.2meg	220Ω	NC	†775Ω
V11	6CG7	†57K	●200K	1000Ω	0Ω	.1Ω	†48K	1.8meg	1000Ω	0Ω
V12	12DQ6B	NC	.1Ω	NC	†18K	1meg	NC	.1Ω	0Ω	TOP CAP †17Ω
V13	12D4	NC	NC	7.2meg	NC	†21Ω	NC	.1Ω	.1Ω	
V14	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †215Ω
V15	5U4GB	NC	¶25K	NC	36Ω	NC	33Ω	NC	¶25K	
V16	23FP4	0Ω	120K	†1meg	0Ω	NC	NC	●210K	.1Ω	
V201	6ER5GG	0Ω	3meg	0Ω	.1Ω	†6600Ω	0Ω	0Ω		
V202	6CG8A	4700Ω	†15K	0Ω	0Ω	.1Ω	†6600Ω	†27K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▪ MEASURED FROM PIN 2 OF V2.
† MEASURED FROM PIN 8 OF V15.
† MEASURED FROM PIN 3 OF V13.

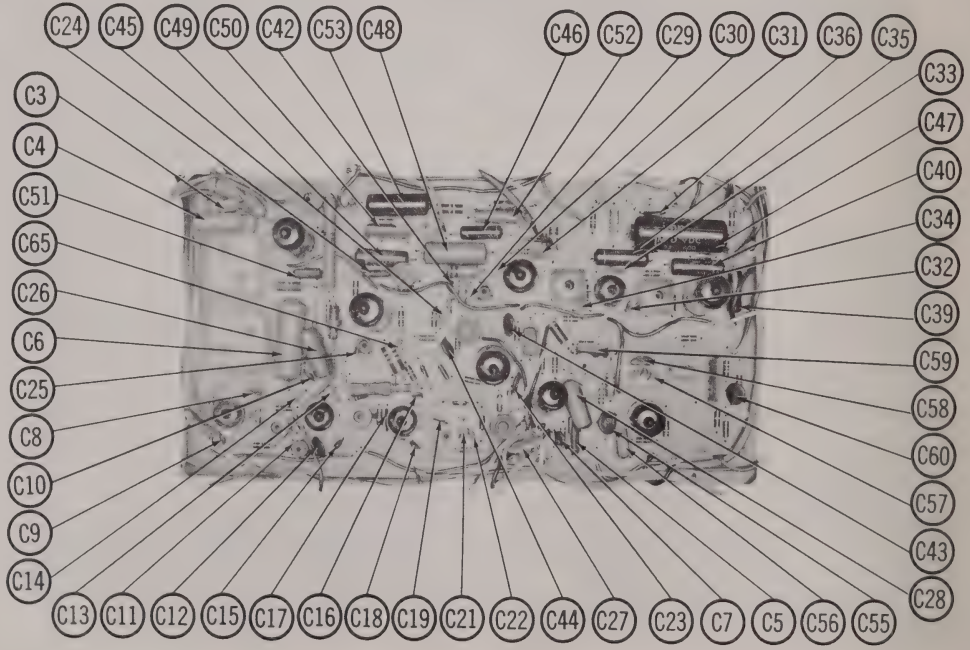
NC NO CONNECTION
TP TIE POINT



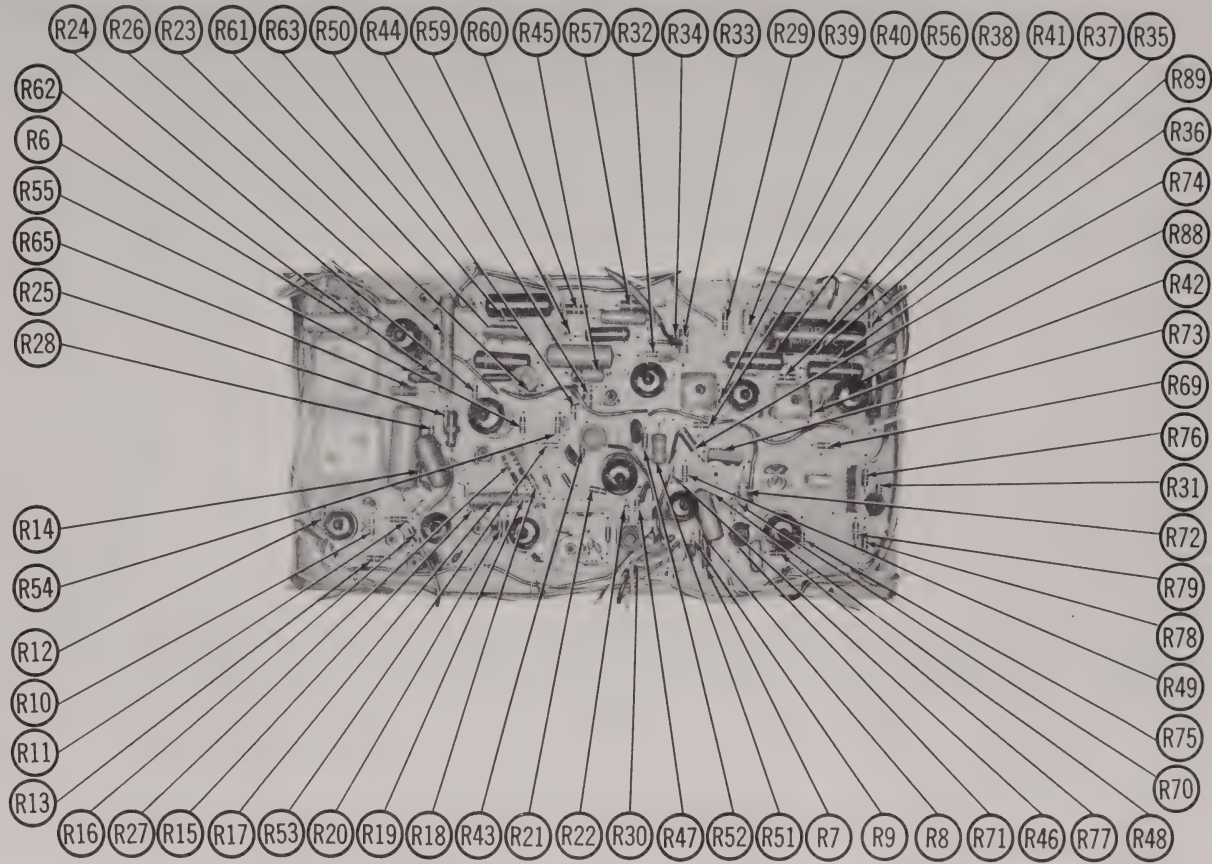
VHF TUNER & CONTROL PANEL ASSEMBLY



TV PRINTED BOARD - INDUCTOR & MISC. IDENT.



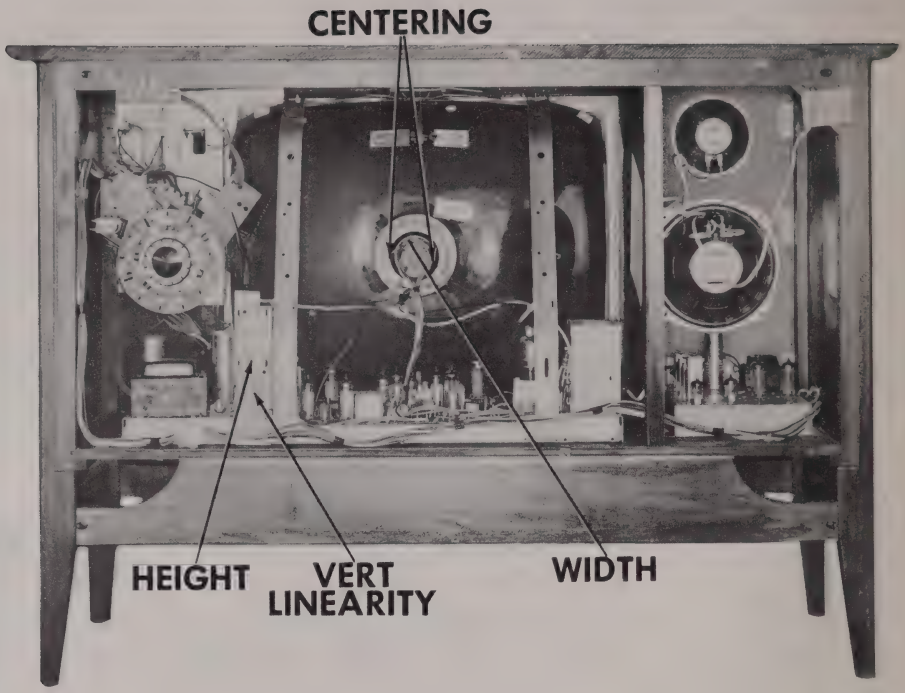
TV PRINTED BOARD - CAPACITOR IDENT.



TV PRINTED BOARD - RESISTOR IDENTIFICATION

WESTINGHOUSE CHASSIS
V-2389-1, -2, -3, V-2405-1, V-2406-1

FOLDER 2



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a clip lead across the Horizontal Stabilizing Coil (L24).

Set the Horizontal Hold to the center of its range.

Connect the DC probe of the VTVM to pin 7 (grid) of the Horizontal Multivibrator (V11). Common to chassis.

With the receiver tuned to a TV signal, adjust the Horiz. Mult. Trimmer (B1) for zero reading on the VTVM. If zero can be approached but not quite reached at one extreme of B1, it may be necessary to set the Horizontal Hold SLIGHTLY to one side of mid-range to obtain zero reading on the VTVM.

Remove the clip lead from L24.

Adjust the Horizontal Stabilizing Coil Slug (B2) for zero reading on the VTVM and check the adjustment by switching off channel and back again. The receiver should pull into synchronization on all channels. If not, repeat adjustments.

DISASSEMBLY INSTRUCTIONS

TV CHASSIS AND PICTURE TUBE ASSEMBLY REMOVAL

1. Remove 5 push-on type knobs at front of cabinet.
2. Remove 6 2ood screws holding rear cover. Remove rear cover.
3. Remove 5 screws holding control panel and tuner bracket assembly.
4. Remove 4 chassis bolts.
5. Remove speaker leads and remote control receiver plug.
6. Remove chassis and picture tube assembly.

PHOTOFACT® Folder

ADMIRAL MODEL
RC7 Series

MODEL RC7FOG-17W

GENERAL INFORMATION

The Admiral RC700 Series Record Changers are four speed automatic changers with slide lever controls.

The main differences between these changers are color, motor, trim, wiring, and the pick-up cartridge.

These changers will play a stack of twelve 10" records, ten 12" records, twelve 10" and 12" records of the same speed intermixed, fourteen 7", 45 rpm records, and shut off automatically after the last record has been played.

Operate these changers on 110-120 volts AC, 60 cycles only.

This manual includes service information on the following models:

RC7AOB-10H	RC7EOC-17W	RC7EOG-22V	RC7FOC-22C
RC7BOB-10H	RC7EOC-22V	RC7FOB-8AD	RC7FOD-16AF
RC7EOB-8AD	RC7EOD-16AF	RC7FOB-20AC	RC7FOD-18Z
RC7EOB-20AC	RC7EOD-18Z	RC7FOB-22AE	RC7FOG-17Q
RC7EOB-22AE	RC7EOG-17Q	RC7FOB-23AE	RC7FOG-17W
RC7EOB-23AE	RC7EOG-17W	RC7FOC-17AF	RC7FOG-19W
RC7EOC-17AF	RC7EOG-19W	RC7FOC-17W	RC7FOG-23V

Manufactured By:

Admiral Sales Corp., Service Division
903 Morrissey Drive
P. O. Box 845
Bloomington, Illinois

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

CQ465

SET 529 FOLDER 3

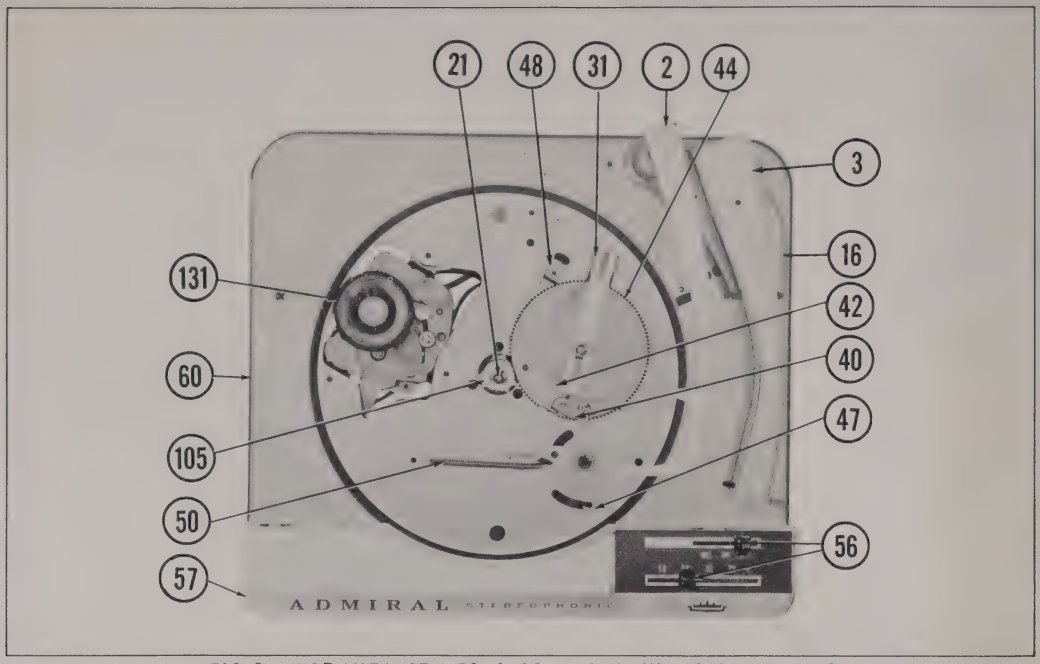


FIG.1 TOP VIEW OF MECHANISM WITH TURNTABLE REMOVED

PREPARING FOR OPERATION

1. Float the changer on its mounting springs by turning the hold-down screws in a clockwise direction until the changer platform is flush with the tops of the screws.
2. Remove needle guard from pick-up cartridge.
3. Lift tone arm free of stud on tone arm rest.
4. Level the record changer.

OPERATING INSTRUCTIONS

Loading the Records

Raise the Leveling Arm (2) straight up until it clears the spindle. Turn Leveling Arm (2) to the right to its stop position.

Place a stack of records, all of the same speed, on the spindle. Turn Leveling Arm (2) to the left and place it on the records.

Speed Selector

Set the speed selector to the speed of the records being played.

When changer is not in use, place the speed selector in the neutral (N) position to prevent flat spots from developing on the idler wheel tire.

Needle Selector

Set the needle selector to correspond to the records being played. The numbers or letters pointing up indicate which stylus is pointing down.

Reject-On-Off

Slide the Rej-On-Off slider to the Rej position momentarily and release. The motor will start running, the changer will go through a change cycle, and the bottom record of the stack will drop to the turntable.

After the last record has played, the changer will return to its rest, and the power to the motor will be switched off.

Rejecting

To reject a record, slide the Rej-On-Off slider to "Rej" position and release. The changer will go through the change cycle and the next record will drop to the turntable.

Stopping

NOTE: Do not turn off the power to the changer, or handle the Tone Arm during the change cycle. Slide the Rej-On-Off slide to the "Off" position. Lift Tone Arm off the record and place on tone arm rest.

Unloading

Grasp Leveling Arm at shaft end, lift straight up until it clears the centerpost and move it over the Tone Arm. Lift the stack of records straight up and off the centerpost.

It is recommended that a geared hub which is normally riveted to the turntable, be obtained so the change cycle can be observed by rotating the geared hub by hand in a clockwise direction. The action described below can then be readily followed and the function of each part more easily understood.

This mechanism is driven by the idler wheel (131) which rides against the inside rim of the turntable (28). The turntable speed is determined by the diameter of the stepped motor shaft (either 78, 45, 33, or 16 driving the idler wheel (131).

The cycling mechanism is driven through its change cycle by means of the drive gear (44), which in turn, is driven by the geared hub of the turntable. When the mechanism is out of cycle, the "open space" on the drive gear is held next to the turntable hub by the gear indexing arm (48) and spring (103).

This mechanism utilizes what is commonly known as a velocity trip, and consists of two main parts: the trip motion arm (42) and the gear engagement pawl (40).

While a record is being played, the trip slider (31) is moved slowly by the stud on the tone arm control lever (79), which moves the tone arm. The stud on the trip slider (31) rides against the trip motion arm (42), moving it slightly. Since the gear engagement pawl (40) is held against the trip motion arm (42) by the trip friction spring (39), the gear engagement pawl (40) is also moved toward the turntable hub. Since this movement is slight, the vertical catch on the gear engagement pawl (40) is just touched and kicked away by the lug on the turntable hub. This occurs with each revolution of the turntable until the gear engagement pawl is moved in rapidly enough to be positioned in front of the lug before the next rotation of the turntable.

As the needle enters the eccentric trip groove of the record, the trip slider (31) is moved in rapidly by the tone arm. The gear engagement pawl (40) moves in front of and engages the lug on the turntable hub. This causes the drive gear (44) to rotate far enough so the teeth on the drive gear will engage the teeth on the turntable hub, therefore starting the change cycle.

The change cycle may also be actuated by sliding the control pointer to the Rej position momentarily. The arm on the end of the reject arm (47) moves the gear engagement pawl (40) into position to engage the lug on the turntable hub.

As the teeth on the turntable hub and drive gear (44) mesh, starting the rotation of the drive gear, the drive eccentric also rotates, since both are mounted on the same shaft. As the drive eccentric rotates clockwise, the drive link (90) pivots the control plate (87). As the control plate pivots, the inclined cut-out moves from beneath the tone arm lift rod (81), raising the tone arm from the record. The safety arm (88) travels with the control plate (87). The stud on the safety arm engages the tone arm control lever (79) and moves the tone arm away from the spindle.

When the tone arm is clear of the turntable, the roller on the drive eccentric (113) engages the push-off link (116). The push-off link moves the push-off lever (111) which engages the push-off adjustment nut (23) on the end of the push-off shaft in the spindle. As the push-off link is moved by the drive eccentric, the push-off lever moves the push-off shaft up into the spindle. The push-off shaft engages the ejector and pushes it up and out at the shelf of the spindle.

As the ejector moves up, it engages the center hole of the record at the bottom of the stack on the shelf. As the ejector moves out of the spindle, the record moves with it until the center hole is clear of the shelf on the spindle. The record drops down the spindle onto the turntable. The balance of the stack of records is held on the shelf by the spindle slide above the ejector.

As the drive eccentric starts into the second half of the change cycle, the push-off return spring (22) returns the safety spring (112), push-off lever (111), and push-off link (116) to proper position and permits the push-off ejector to return into position for push-off of the next record on the shelf of the spindle.

After push-off and during the second half of the change cycle, the tone arm is returned to the edge of the record on the turntable. The tone arm is mounted to the tone arm control lever (79). The engagement spring (80) presses the tone arm control lever against the cork friction washer (77) on the set-down arm (76). As the set-down arm return spring (74) draws the set-down arm toward the spindle, the cork friction washer returns the tone arm control lever with the set-down arm.

As the control plate (87) is returned by the drive link (90), the inclined cut-out moves beneath the tone arm lift rod (81). As the tone arm lift rod descends into the inclined cut-out, the tone arm is lowered to the record.

The set-down index (71) automatically determines the correct set-down position of the tone arm for each record size. An index finger on the set-down arm (76) engages the set-down index (71). The set-down index is released by the index pin on the set-down arm and permits the set-down index to pivot of its own weight and lift the index finger to the edge of the turntable as the long stud on the safety arm (88) moves the set-down arm (76).

If 7" records are being changed, the index finger is free to move to its extreme upward position. The set-down arm return spring (74) draws the set-down arm (76) toward the spindle. In this position, the index pin on the set-down arm (76) will travel to the front slot in the set-down index. Since the index pin is held in the front slot it is prevented from moving further toward the spindle, and the inward travel of the tone arm will stop directly over the lead-in groove of a 7" record.

A 10" record will extend past the edge of the turntable far enough so the index finger cap (72) will contact the edge of the record. The index finger cannot raise as high as when 7" records were being changed, thus the rear of the set-down index will drop just far enough so as to allow the index pin on the set-down arm (76) to ride into the middle slot of the set-down index. When the index pin is located in this middle slot, the inward travel of the tone arm will stop directly over the lead-in groove of a 10" record.

A 12" record extends past the edge of the turntable far enough so the set-down trigger (34) will feel the record as it drops. When a 12" record drops, it forces the set-down trigger (34) back. The 12" set-down slide (53) is released and is pulled by spring (54) until it moves into a slot on the set-down index (71). Since the set-down index (71) is held by the 12" setdown slide (53), the index pin on the set-down arm (76) will enter the slot for 12" set-down.

The 12" set-down slide (53) is reset at the beginning of each change cycle. It is triggered by the 12" set-down trigger (34), by means of the pin on the safety arm and stud assembly (88). The pin is actuated by a roller on the underside of the pan that is attached to the 12" set-down slide (53).

The rubber cap (72) of the index finger will always feel the equivalent of a 10" record and the 12" set-down trigger (34) corrects this action for 12" records. Intermix of 10" and 12" records is accomplished in this manner.

Automatic Shut-Off

As soon as the last record has been dropped, the leveling arm (2) drops below the shelf on the spindle. The bottom end of the leveling arm shaft extends beneath the changer pan and will lower the shut-off delay stop (124). The shut-off link control arm on the shut-off link (85) is then permitted to pivot with the shut-off arm spring (86) fastened at its other end to the control plate (87). The shut-off link control arm will draw the shut-off link and engage its cam that positions the shut-off link in line with the stud on the reject arm (47).

As the shut-off link (85) is drawn toward the control plate (87), the stop on the shut-off link moves into the path of the stud on the tone arm lever (79).

When the control plate (87) begins to return in the second half of the change cycle, a stud on the control plate moves the shut-off link (85) to snap off the motor switch and return the "Rej-On-Off" control to the "Off" position.

The tone arm control lever (79) is held by the tone arm stop on the shut-off link (85) while the control plate (87) is going through the second half of the change cycle; the tone arm is held suspended above the tone arm rest (32). As the inclined cut-out moves under the tone arm lift rod (81), the tone arm is lowered onto the tone arm rest.

ADJUSTMENTS

Height

If the height adjustment is correct, the needle of the tone arm should clear the baseplate (60) by approximately 1/4" when the changer is out of cycle. The tone arm will clear a stack of 12 standard 10", 78 records on the turntable and will clear the bottom of a record resting on the spindle shelf.

The tone arm height adjusting screw (11) is accessible through a hole on the top of the tone arm at the tone arm base. To raise the height of the tone arm, turn the adjusting screw clockwise.

Set-Down

The tone arm will automatically set down properly on 7" or 12" records if the set-down adjustment is properly made on a 10" record. The set-down adjustment screw (5) is accessible through the hole in the left side of the tone arm. Turning this screw counterclockwise moves the arm closer to the spindle and turning it clockwise moves it away from the spindle. Make the set-down adjustment as follows:

1. Grasp the leveling arm (2) at the shaft end and swing the arm to the right as far as possible.
2. Place a 10" record on the turntable.
3. Slide the Rej-On-Off control to Rej position and then return it to the Off position.
4. Rotate the turntable by hand until the tone arm starts its downward travel to the record.
5. Adjust the set-down adjustment screw (5) so the needle will land in the lead-in grooves of the 10" record.
6. Check the set-down point with each size record. Touch up the set-down adjustment until the tone arm sets down properly for all record sizes.

Velocity Trip

These changers use a velocity type trip, which depend upon a rapid movement of the tone arm toward the spindle in any area between 2 1/4" and 1 15/16" from the center of the record. This type of trip requires no adjustment. In order for the changer to trip properly, there must be sufficient friction between the trip motion arm (42) and the gear engagement pawl (40). If there is insufficient friction or these parts do not turn together readily, the gear engagement pawl and trip motion arm assembly should be replaced.

Push-Off

The push-off adjustment must be checked whenever the spindle has been removed or changed. Record push-off is accomplished by an ejector and push-off shaft built into the spindle. The ejector and push-off shaft are actuated during a change cycle by safety spring (112). If ejector travel is not sufficient for record push-off, adjustment may be required.

The ejector travel is adjusted by adjustment nut (23). The ejector should extend just slightly beyond the edge of the shelf on the spindle when properly adjusted.

IMPORTANT: Additional travel must be allowed for the push-off shaft and ejector after the push-off lever (111) has moved its full distance.

To adjust the push-off, proceed as follows:

1. Rotate the turntable clockwise by hand. Slide the Rej-On-Off control to Rej, and let it return to the On position.
2. Continue the turntable rotation slowly until the roller on the drive eccentric (113) engages the push-off link (116). Rotate the turntable until the

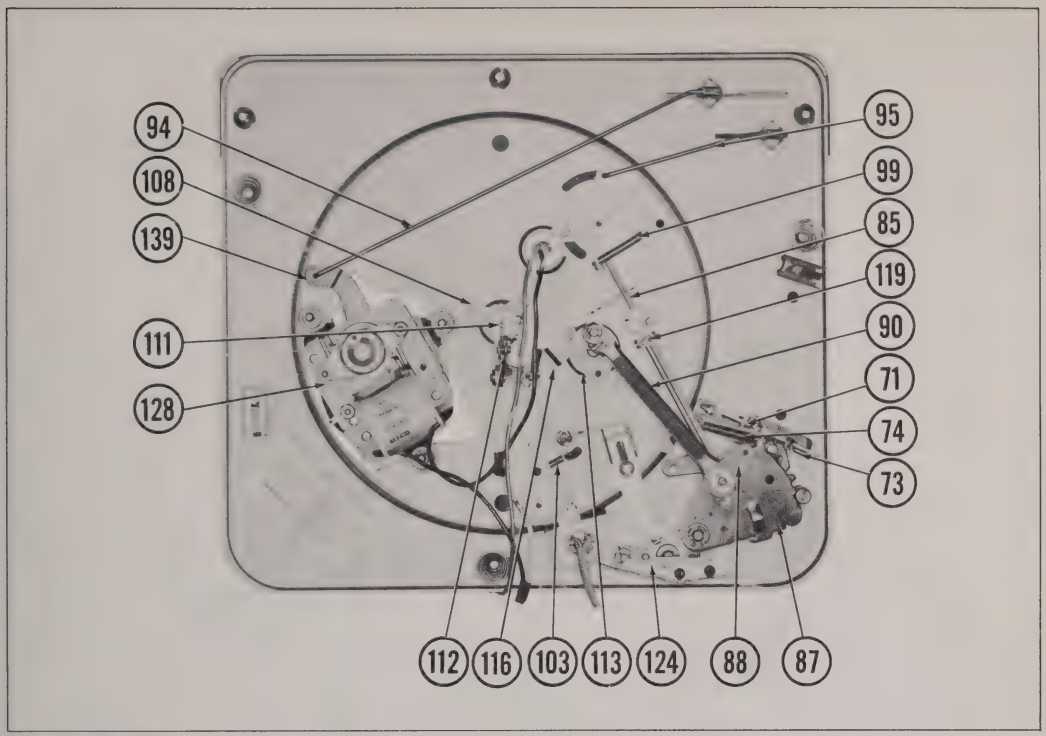


FIG.2 BOTTOM VIEW OF MECHANISM

roller has moved the push-off link its full distance. Push-off lever (111) now is extended its maximum travel.

3. Check the position of the ejector at the shelf on the spindle. It should extend just beyond the edge of the shelf. If the ejector does not extend beyond the shelf, turn the push-off adjustment nut (23) counterclockwise. Use a 1/4" open-end wrench for this adjustment.

4. Press the push-off adjustment nut (23) to check for additional travel before the push-off shaft stops. The ejector should move out past the shelf slightly more than necessary for push-off.

5. Slide a 10 thousandths of an inch (.010) feeler gauge between the flat surface of the adjustment nut (23) and the safety spring (112). Adjust until the feeler gauge passes between them freely.

NOTE: The additional travel for the push-off shaft may vary. In order to obtain proper push-off, the clearance of 10 thousandths of an inch must not vary more than plus or minus 5 thousandths of an inch.

LUBRICATION

CAUTION: Do not apply grease or oil to the trip slider (31). Under normal operating conditions, the motor should never require lubricating. Gear engagement pawl (40), fiber washer (41), and trip motion arm (42) must be kept clean and dry.

1. Leveling arm shaft (97) must be free of binding in its bearing in the tone arm base. Use dry graphite powder to lubricate the shaft.

2. The turntable hub should be lubricated with a good grade light oil. The oil must be fluid so it will penetrate and be absorbed by the bearing material. Do not use grease of any kind.

3. The pivot points of the set-down index (71) should not be lubricated. They must be kept clean and dry so it will pivot from its own weight. However, a nonhardening grease should be applied to the set-down position slides.

4. The turntable thrust bearing (105) should be cleaned with alcohol or a good cleaner and repacked with nonhardening grease.

5. Set the speed selector to the 16, 33, or 45 position. Place a 30 thousandths (.030) of an inch feeler gauge between the idler wheel (131) and the step on the motor shaft. Add to or subtract from the amount of washers under the idler wheel until the feeler gauge passes freely. Place enough washers under the "E" ring retainer to keep the up and down movement of the idler wheel at a minimum.

6. Clean and lubricate all other moving parts when the changer is serviced.

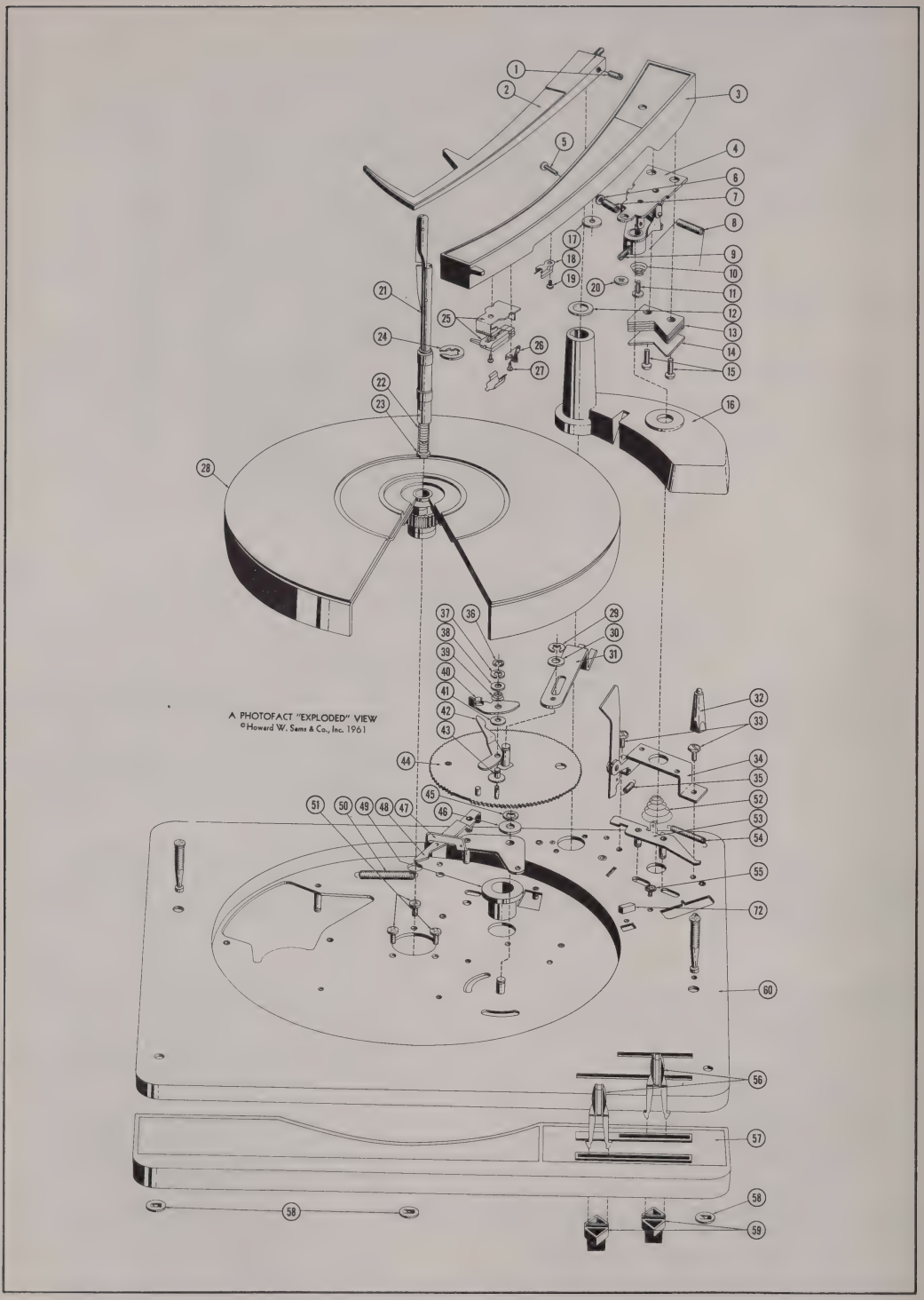


FIG.3A EXPLODED VIEW OF PARTS ABOVE CHANGER PAN

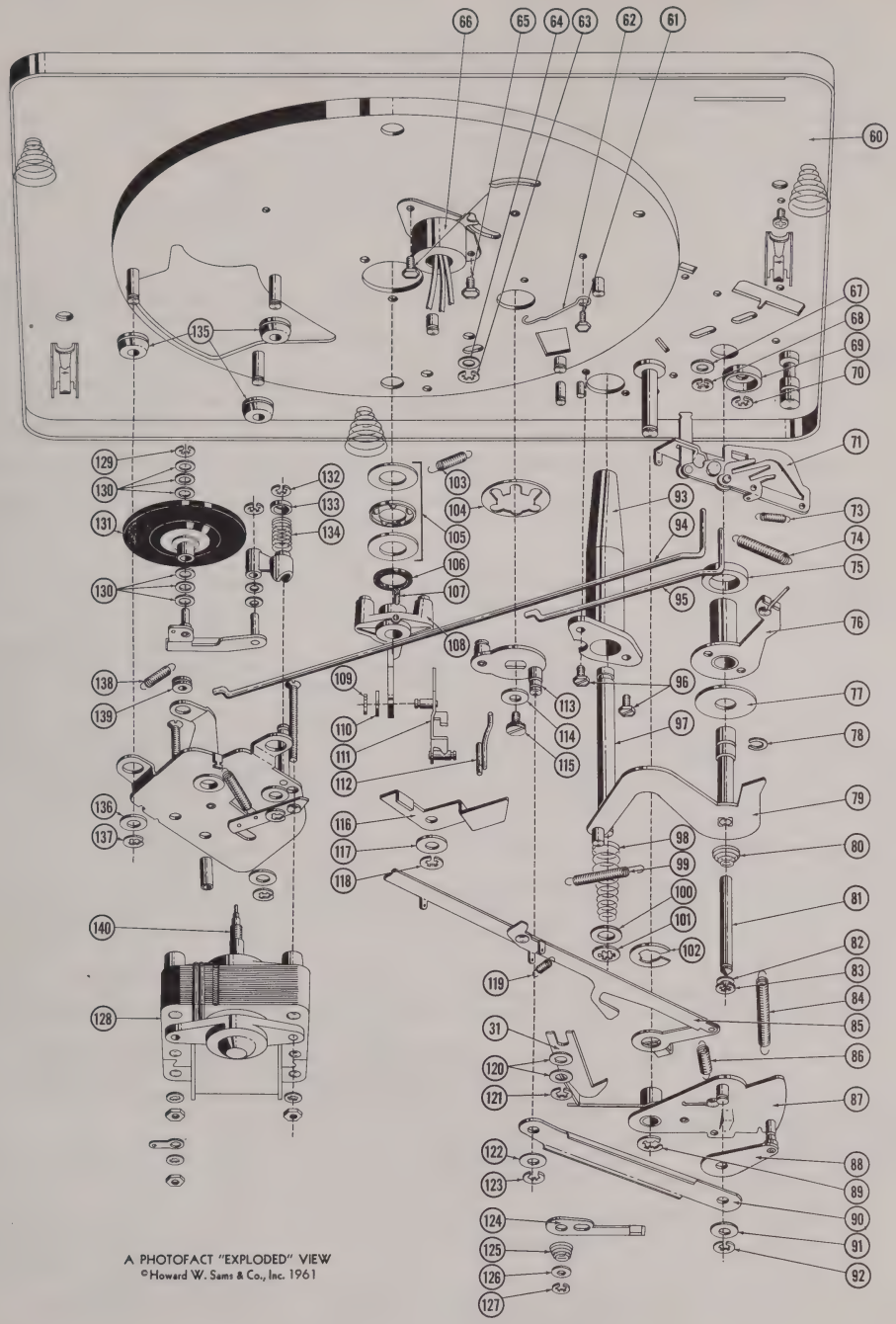


FIG. 3 B EXPLODED VIEW OF PARTS BELOW CHANGER PAN

CLEANING

Clean the following parts: idler wheel tire, inside rim of turntable, rubber grommets, trip slider, engagement pawl, and trip motion arm with alcohol to remove any grease or oil from them.

TROUBLE CHART

Symptom	Cause	Remedy
Continuous tripping.	1. Gear indexing spring (103) tension insufficient. 2. Trip slider return spring on control plate (87) bent. 3. Trip slider (30) bent. 4. Gear index arm assembly (48) binding against changer pan.	1. Replace gear indexing spring (103). 2. Straighten or replace trip slider return spring. 3. Straighten or replace trip slider (30). 4. Free gear index arm assembly (48) so it will function without binding on the changer pan.
Tone arm does not set down properly.	1. Set-down misadjusted. 2. Set-down index assembly (71) binding.	1. See "Set-Down Adjustment". 2. Clean all pivot points. Make sure the half punches are interlocked into the holes of the changer pan.
Records squeak on turntable.	1. Label burns folded into center hole. 2. Spindle surface dirty.	1. Carefully remove the label burns with a small knife blade. 2. Put a few drops of light machine oil on a soft cloth and polish the spindle.
Changer trips into the change cycle before finishing record.	1. Foreign material between trip motion arm (42) and engagement pawl (40). 2. Trip slider return spring on control plate (87) bent. 3. Trip slider (31) bent.	1. Clean any foreign matter out and lubricate with a good lubricant. 2. Bend slider return spring back to its original form. 3. Bend trip slider (31) to original form or replace.
Changer stalls in change cycle.	1. Foreign matter on idler wheel (131) tire. 2. Push-off adjustment has improper clearance.	1. Clean idler wheel tire and inside rim of turntable with alcohol. 2. See "Push-Off Adjustment".
Records fall to turntable unevenly.	1. Spindle dirty. 2. Push-off ejector binding. 3. Push-off shaft out of adjustment.	1. Polish spindle with a soft cloth with a few drops of oil on it. 2. Be sure it is free of any foreign material and pivots freely. 3. See "Push-Off Adjustment".
Records do not push off, or more than one record drops to the turntable.	1. Ejector return spring in spindle weak or broken. 2. Push-off return spring (22) weak. 3. Push-off shaft out of adjustment. 4. Foreign material between record shelf and ejector in the spindle.	1. Replace spindle (21). 2. Replace push-off return spring (22). 3. See "Push-Off Adjustment". 4. Clean any foreign material that may be between the record shelf and ejector.
Changer fails to trip.	1. Trip slider (31) binding. 2. Trip motion arm (42) and gear engagement pawl (40) dirty. 3. Trip slider return spring on control plate (87) loose, bent, or misplaced. 4. Gear index assembly (48) binding.	1. Clean any oil, grease, or dirt from the trip slider (31) so it moves freely. 2. Clean these parts of any oil, grease, or dirt and make sure they move together easily. If necessary, replace. 3. Replace control plate (87). 4. Free gear index assembly (48) and if necessary, replace.

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
	5. Drive gear assembly (44) binding in bushing (49).	5. If drive gear shaft is bent, replace. If bushing is worn, replace.
	6. Tone arm leads too tight preventing the tone arm from moving freely.	6. Dress leads so tone arm will move freely.
	7. Tone arm control lever and shaft assembly (79) does not rotate freely in set-down arm assembly (76) causing the tone arm to bind.	7. Set-down friction washer (77) should be replaced if it is oil soaked.
Tone arm skips grooves on records.	1. Grooves on records dirty or damaged.	1. Clean records or replace.
	2. Record changer not level.	2. Level record changer from front to back and from side to side.
	3. Needle damaged.	3. Replace the needle.
	4. Binding at bearing (93) in the tone arm base (16) or between the shaft of the tone arm control lever (79) and the shaft of set-down arm (76).	4. Clean these parts and polish the shafts with a soft cloth with a few drips of oil on it.
	5. Trip slider (31) dirty, greasy, or oily; is bent or has burrs on it.	5. Clean any dirt, grease or oil from it. If bent, straighten to original shape and remove any burrs.
	6. Trip motion arm (42) and the gear engagement pawl (40) binding.	6. If these parts cannot move freely, replace so they will not load the trip slider (31).
Changer rumble or noise.	1. Changer does not float freely on its mounting springs.	1. Be sure the changer hold-down screws are flush with the changer pan.
	2. Neoprene washer (106) worn.	2. Replace neoprene washer (106).
	3. Floating spring broken.	3. Replace floating spring.
	4. Escutcheon (57), on changers having one, not held securely to changer pan.	4. Be sure the three speed nuts (58) are in place. If one of the studs on the escutcheon (57) is broken, replace escutcheon (57).
	5. Mechanical part near motor rubbing.	5. If a mechanical part is bent, straighten. If worn, replace.
	6. Speed selector knob binding on changer pan or escutcheon.	6. Be sure the correct knob is on the changer. Check for foreign material between the knob and changer pan or escutcheon.
Changer will not shut off automatically.	1. Binding between leveling arm shaft (97) and bearing (93) in tone arm base.	1. Clean leveling arm shaft (97) and polish with a cloth with a few drops of oil.
	2. Not enough tension in shut-off delay engagement spring (125).	2. Replace shut-off delay engagement spring (125).
	3. Shut-off delay stop (124) binding.	3. Clean any foreign material from it and make sure it moves freely.
	4. Cam on shut-off link (85) binding.	4. If dirty, clean. If worn, replace.
	5. Shut-off arm spring (86) lost its tension.	5. Replace shut-off arm spring (86).
	6. Felt washer (12) damaged.	6. Replace felt washer (12).

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	402A296-1	#8-32 x 3/16" Knurled Point Set Screw
2	404C52-1	Leveling Arm (Sandalwood), for RC7AOB-10H, RC7BOB-10H, RC7EOB-8AD, RC7EOB-22AE, RC7EOB-23AE, RC7EOC-17AF, RC7EOC-17W, RC7EOC-22V, RC7EOD-16AF, RC7EOD-18Z, RC7FOB-8AD, RC7FOB-20AC, RC7FOB-22AE, RC7FOB-23AE, RC7FOC-17AF, RC7FOC-17W, RC7FOC-22V, RC7FOD-16AF, and RC7FOD-18Z
	404C52-3	Leveling Arm (Gold), for RC7EOG-17Q, RC7EOG-17W, RC7EOG-19W, RC7EOG-23V, RC7FOG-17Q, RC7FOG-17W, RC7FOG-19W, and RC7FOG-23V
3	403D100-1	Tone Arm (Beige), for RC7EOB-8AD, RC7EOB-22AE, RC7EOB-23AE, RC7FOB-8AD, RC7FOB-22AE, and RC7FOB-23AE.
	403D100-3	Tone Arm (Beige With Gold Edge) for RC7EOC-17AF, RC7EOC-17W, RC7EOC-22V, RC7EOD-16AF, RC7EOD-18Z, RC7EOG-17Q, RC7EOG-17W, RC7EOG-19W, RC7EOG-23V, RC7FOC-17AF, RC7FOC-17W, RC7FOC-22V, RC7FOD-16AF, RC7FOD-18Z, RC7FOG-17Q, RC7FOG-17W, RC7FOG-19W, and RC7FOG-23V
	403D101-1	Tone Arm (Beige, Front Mtg. Cartridge), For RC7AOB-10H, RC7BOB-10H, RC7EOB-20AC, and RC7FOB-20AC.
4	400A727-1	Tone Arm Suspension Ass'y. for RC7EOB-8AD, and RC7FOB-8AD.
	400A727-2	Tone Arm Suspension Ass'y. for RC7EOB-22AE, RC7EOB-23AE, RC7EOC-17AF, RC7EOC-17W, RC7EOC-22V, RC7EOD-16AF, RC7EOG-17Q, RC7EOG-17W, RC7EOG-23V, RC7FOB-22AE, RC7FOB-23AE, RC7FOC-17AF, RC7FOC-17W, RC7FOC-22V, RC7FOD-16AF, RC7FOG-17Q, and RC7FOG-17W, and RC7FOG-23V.
	400A727-3	Tone Arm Suspension Ass'y. for RC7AOB-10H and RC7BOB-10H.
	400A727-4	Tone Arm Suspension Ass'y. for RC7EOB-20AC, RC7EOD-18Z, RC7EOG-19W, RC7FOB-20AC, RC7FOD-18Z, and RC7FOG-19W
		Tone Arm Suspension Ass'y. Includes the Following:
5	1C188-513-47	#4-40 x 3/4" BH Metal Screw
6	4C1-19-47	Flat Washer, Steel
7	405A137-1	Set-Down Adjust Lock Spring
8		Counterbalance Spring
9	402A296-1	#8-32 x 3/16" Knurled Point Set Screw
10	405A148-1	Lift Adjust Lock Spring
11	402A290-1	Lift Adjust Screw
12	412A47-1	Felt Washer
13	401A481-2	Tone Arm Counterweight
14	401A481-1	Tone Arm Counterweight
15	402A375-2	#4 x 5/16" RH PH ST Screw
16	403C85-5	Tone Arm and Leveling Arm Base
17	412A50-1	Fibre Washer
18	401A428-1	Tone Arm Clip
19	402A366-1	#4 x 3/16" RH PH ST Screw
20	2C10-5-59	1/8" Speed Nut
21	400B681-1	Centerpost Assembly, includes:
22	405A142-1	Push-Off Return Spring
23	403A87-1	Push-Off Adjustment Nut
24	401A355-3	5/16" "E" Ring
25	409B28-1	Pickup Cartridge for RC7EOB-8AD, and RC7FOB-8AD
	98C15-89	Needle, Dual (Sapphire), for 409B28-1
	409B29-1-1	Pickup Cartridge for RC7AOB-10H, and RC7BOB-10H
	98C98-121	Needle, LP (Sapphire) for 409B29-1-1
	98C95-5	Needle, 78 (Sapphire) for 409B29-1-1.
	409B33-1-1	Pickup Cartridge for RC7EOD-16AF and RC7FOD-16AF
	98C15-100	Needle, LP (Sapphire) for 409B33-1-1
	98C15-101	Needle, 78 (Sapphire) for 409B33-1-1
	409B33-2-1	Pickup Cartridge for RC7EOC-17AF, RC7EOC-17W, RC7EOG-17Q, RC7EOG-17W, RC7FOC-17AF, RC7FOC-17W, RC7FOG-17Q, and RC7FOG-17W
	98C15-102	Needle, LP (Diamond) for 409B33-2-1
	98C15-101	Needle, 78 (Sapphire) for 409B33-2-1
	409C34-1-1	Pickup Cartridge for RC7EOD-18Z and RC7FOD-18Z
	98C95-8	Needle, Dual (Sapphire), for 409C34-1-1
	409C34-2-1	Pickup Cartridge for RC7EOG-19W and RC7FOG-19W
	98C 95-9	Needle, Dual (Diamond-Sapphire) for 409C34-2-1
	409C37-1	Pickup Cartridge for RC7EOB-20AC and RC7FOB-20AC
	98C95-4	Needle, LP (Sapphire) for 409C37-1
	98C95-5	Needle, 78 (Sapphire) for 409C37-1
	409C39-1	Pickup Cartridge for RC7EOB-22AE, RC7EOD-22V, RC7FOB-22AE and RC7FOC-22V
	98C95-14	Needle, LP (Sapphire) for 409C39-1
	98C95-15	Needle, 78 (Sapphire) for 409C39-1

MECHANICAL PARTS LIST (CONT'D)

Ref. No.	Part No.	Description
	409C39-2	Pickup Cartridge for RC7EOB-23AE, RC7EOG-23V, RC7FOB-23AE, and RC7FOG-23V
	98C95-16	Needle, LP (Diamond) for 409C39-2
	98C95-17	Needle, 78 (Sapphire) for 409C39-2
26	400A731-1	Record Brush and Mtg. Brkt. Assembly, for RC7EOB-23AE, RC7EOC-17AF, RC7EOC-17W, RC7EOG-17Q, RC7EOG-17W, RC7EOG-19W, RC7EOG-23V, RC7FOB-23AE, RC7FOC-17AF, RC7FOC-17W, RC7FOG-17Q, RC7FOG-17W, RC7FOG-19W, and RC7FOG-23V only.
27	402A375-1	#4 x 1/4" RH PH ST Screw
28	400C718-1	Turntable Assembly for RC7AOB-10H, RC7BOB-10H, RC7EOB-8AD, RC7EOB-20AC, RC7EOB-22AE, RC7EOB-23AE, RC7EOC-17AF, RC7EOC-17W, RC7EOC-22V, RC7FOB-8AD, RC7FOB-20AC, RC7FOB-22AE, RC7FOB-23AE, RC7FOC-17AF, RC7FOC-17W and RC7FOC-22V. Includes:
	406D37-1	Turntable Mat, Rubber, Brown
	400C718-2	Turntable Assembly for RC7EOD-16AF, RC7EOD-18Z, RC7EOG-17Q, RC7EOG-17W, RC7EOG-19W, RC7EOG-23V, RC7FOD-16AF, RC7FOD-18Z, RC7FOG-17Q, RC7FOG-17W, RC7FOG-19W, and RC7FOG-23V. Includes:
	406D37-1	Turntable Mat, Rubber, Brown
	401484-1	Turntable Mat Inlay (Gold)
29	401A355-1	3/16" "E" Ring
30	412A52-1	Fishpaper Washer
31	400B719-1	Trip Slider and Stud Assembly
32	403A65-7	Tone Arm Rest
33	402A373-1	#6-32 x 1/4" Self-Tapping Screw
34	400A651-2	Tone Arm Alignment Bracket and Trigger Assembly. Includes:
35	405A160-1	12" Trigger Cocking Spring
36	401A355-6	1/8" "E" Ring
37		
38		
39	400A588-2	Gear Engagement Pawl and
40		Trip Motion Arm Assembly
41		
42		
43		
44	400A587-3	Drive Gear, Shaft, and Stud Assembly
45	401A355-1	3/16" "E" Ring
46	401A388-1	Steel Washer
47	400A725-1	Switch and Reject Arm Ass'y.
48	400A620-1	Gear Indexing Arm and Stud Assembly
49	415A31-1	Drive Gear Bearing
50	405A140-1	Reject Arm Return Spring
51	402A376-1	#6-32 x 3/8" RH PH ST Screw
52	405A161-1	Set-Down Pivot Spring
53	400A652-1	12" Set-Down Slide Assembly
54	405A159-1	12" Set-Down Slide Spring
55	1C191-78-58	#6-32 x 3/16" RH PH Sems Screw
56	403B98-1	Control Knobs for RC7AOB-10H, RC7BOB-10H, RC7EOB-8AD, RC7EOB-20AC, RC7EOB-22AE, RC7EOB-23AE, RC7EOD-16AF, RC7EOD-18Z, RC7FOB-8AD, RC7FOB-20AC, RC7FOB-22AE, RC7FOB-23AE, RC7FOD-16AF and RC7FOD-18Z
	403B98-2	Control Knobs for RC7EOC-17AF, RC7EOC-17W, RC7EOC-22V, RC7EOG-17Q, RC7EOG-17W, RC7EOG-19W, RC7EOG-23V, RC7FOC-17AF, RC7FOC-17W, RC7FOC-22V, RC7FOG-17Q, RC7FOG-17W, RC7FOG-19W, and RC7FOG-23V
57	404C51-1	Escutcheon(Gold) for RC7EOC-17AF, RC7EOC-17W, RC7EOC-22V, RC7EOG-17Q, RC7EOG-17W, RC7EOG-19W, RC7EOG-23V, RC7FOC-17AF, RC7FOC-17W, RC7FOC-22V, RC7FOG-17Q, RC7FOG-17W, RC7FOG-19W, and RC7FOG-23V only.
58	401A485-1	3/16" Speed Nut for 404C51-1 Escutcheon.
59	403B99-1	Control Knob Retainer
60		Changer Pan Assembly
61	402A370-1	#6-32 x 3/16" Self-Tapping Screw
62	414A50-1	Shutoff Link Hold-Down
63	401A355-1	3/16" "E" Ring
64	4B2-178-0	Brass Washer
65	402A370-1	#6-32 x 3/16" Self-Tapping Screw
66	400A606-1	Switch and Mounting Plate Assembly
67	401A455-1	Steel Washer
68	401A355-1	3/16" "E" Ring
69	415A37-1	Cocking Roller
70	401A355-1	3/16" "E" Ring
71	400A653-2	Set-Down Index Assembly, Includes:
72		10" Index Finger Cap
73	405A143-1	Index Return Spring
74	405A146-1	Arm Return Spring
75	415A34-1	Set-Down Arm Spacer
76	400A616-1	Set-Down Arm Assembly
77	412A40-1	Set-Down Friction Washer, Cork
78	401A396-4	3/16" "C" Retaining Ring
79	400B715-1	Tone Arm Control Lever Ass'y.
80	405A144-1	Set-Down Engagement Spring
81	402A284-1	Lift Rod
82	4C1-195-47	Steel Washer
83	401A355-1	3/16" "E" Ring
84	405A145-1	Safety Spring
85	400A629-1	Shut-Off Link and Arm Assembly
86	405A151-1	Shut-Off Arm Spring
87	400A621-2	Control Plate Assembly
88	400A622-1	Safety Arm and Stud Assembly

MECHANICAL PARTS LIST (CONT'D)

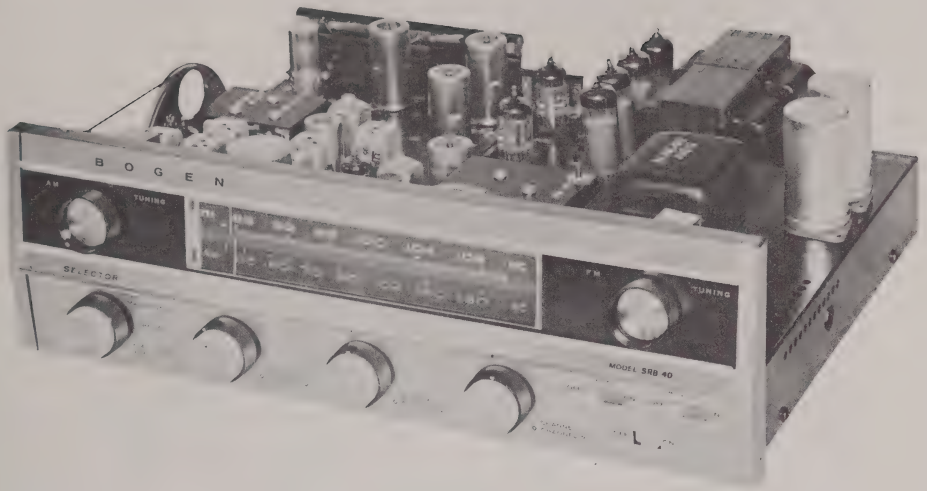
Ref. No.	Part No.	Description
89	401A355-2	1/4" "E" Ring
90	401A448-1	Drive Link
91	401A439-1	Brass Washer
92	401A355-1	3/16" "E" Ring
93	404B46-1	Leveling Arm Bearing
94	414B56-1	Speed Change Wire Link
95	414A55-1	Switch and Reject Wire Link
96	402A369-1	#6-32 x 5/16" Self-Tapping Screw
97	402B382-1	Leveling Arm Shaft
98	405A162-1	Leveling Arm Return Spring
99	405A140-1	Reject Arm Return Spring
100	4C1-127-47	Steel Washer
101	405A167-1	Retaining Washer
102	401A355-7	3/8" "E" Ring
103	405A147-1	Gear Indexing Spring
104	405A99-1	Retaining Washer
105	415A29-2	Thrust Bearing
106	406B38-1	Neoprene Washer
107	402A296-1	#8-32 x 3/16" Knurled Point Set Screw
108	404B48-1	Turntable Support Hub
109	401A355-1	#3/16" "E" Ring
110	401A388-1	Steel Washer
111	400A682-1	Push-Off Lever and Stud Assembly, Includes:
112	405A154-1	Push-Off Safety Spring
113	400A605-1	Drive Eccentric Assembly
114	401A388-1	Steel Washer
115	1C194-553-47	#8-32 x 1/4" Sems Screw
116	401A450-1	Push-Off Link
117	401A388-1	Steel Washer
118	401A355-1	3/16" "E" Ring
119	405A152-1	Shut-Off Cam Return Spring
120	412A52-1	Fishpaper Washer
121	401A355-1	3/16" "E" Ring
122	401A388-1	Steel Washer
123	401A355-1	3/16" "E" Ring
124	401A398-1	Shut-Off Delay Stop
125	405A153-1	Shut-Off Engagement Spring
126	4B2-178-0	Brass Washer
127	401A355-1	3/16" "E" Ring
128	407C33-1	Motor Ass'y., 117V, 60 Cycles, for RC7FOB-8AD, RC7FOB-20AC, RC7FOB-22AE, RC7FOC-17AF, RC7FOC-17W, RC7FOC-22V, RC7FOD-16AF, RC7FOD-18Z, RC7FOG-17Q, RC7FOG-17W, RC7FOG-19W, and RC7FOG-23V
	407C33-3	Motor Ass'y., 90V, 60 Cycles, for RC7BOB-10H
	407C34-1	Motor Ass'y., 117V, 60 Cycles, for RC7EOB-8AD, RC7EOB-20AC, RC7EOB-22AE, RC7EOB-23AE, RC7EOC-17AF, RC7EOC-17W, RC7EOC-22V, RC7EOD-16AF, RC7EOD-18Z, RC7EOG-17Q, RC7EOG-17W, RC7EOG-19W, and RC7EOG-23V
407C34-3		Motor Ass'y., 90V, 60 Cycles, for RC7AOB-10H
PARTS USED WITH 407C33-1 AND 407C33-3 MOTOR ASSEMBLIES		
129	98C15-118	"E" Ring
130	98C15-127	Fibre Washer
131*	*98C15-114	*Idler Wheel
132	98C15-118	"E" Ring
133	98C15-119	Speed Changer Spring Retaining Cap
134	98C15-120	Speed Changer Spring
135	98C15-117	Motor Mtg. Grommet
136	401A388-1	Steel Washer
137	401A355-1	3/16" "E" Ring
138	98C15-115	Idler Spring
139	406A36-1	Shift Link Grommet
140	98C15-116	78 rpm Drive Spring
PARTS USED WITH 407C34-1 AND 407C34-3 MOTOR ASSEMBLIES		
129	98C15-124	"E" Retaining Ring
130	98C15-125	Fibre Washer
131	98C15-121	Idler Wheel
135	98C15-123	Motor Mounting Grommet
138	98C15-122	Idler Spring
	98C15-126	Link Spring

* Idler Wheel Walsco Replacement Part No. 1490-03

PHOTOFACT® Folder

BOGEN MODEL SRB40

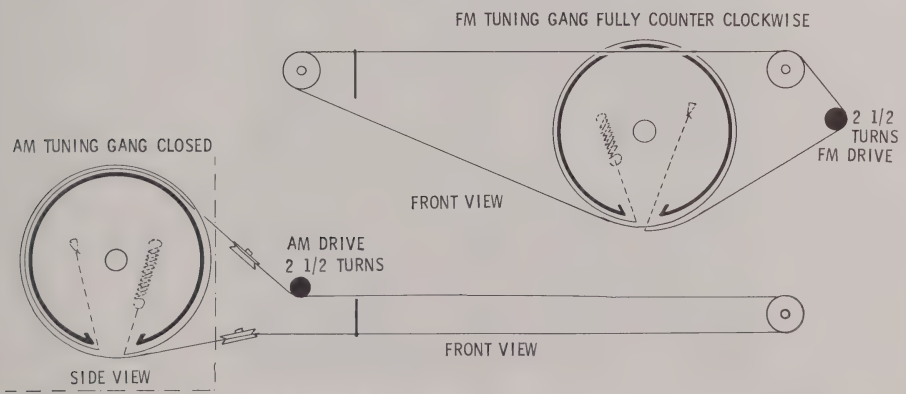
BOGEN MODEL SRB40



BOGEN MODEL SRB40

TRADE NAME	Bogen Model SRB40		
MANUFACTURER	Bogen-Presto Co., A Div. of the Siegler Corp., P.O. Box 500, Paramus, N. J.		
TYPE SET	AC Operated 16 Tube FM-AM Receiver With Stereo Amplifier		
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles	RATING	125 Watts, 1.3 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	520 – 1640KC	FREQ. MOD.	88 – 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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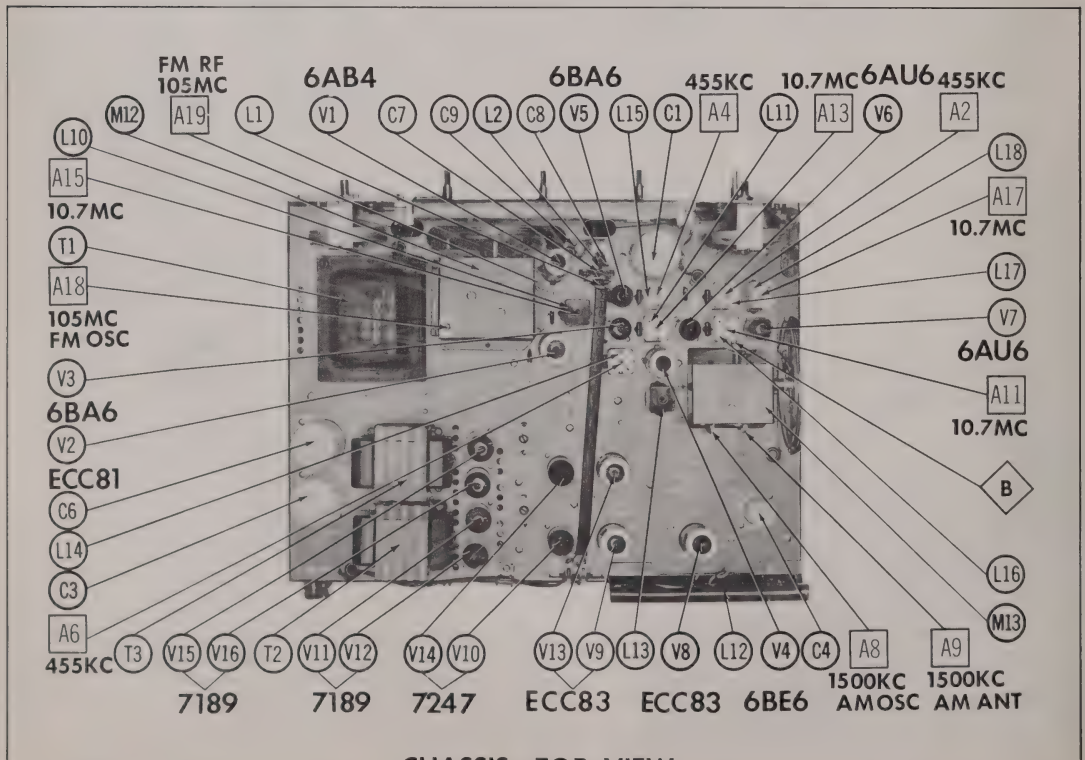
KK440

SET 529 FOLDER 4

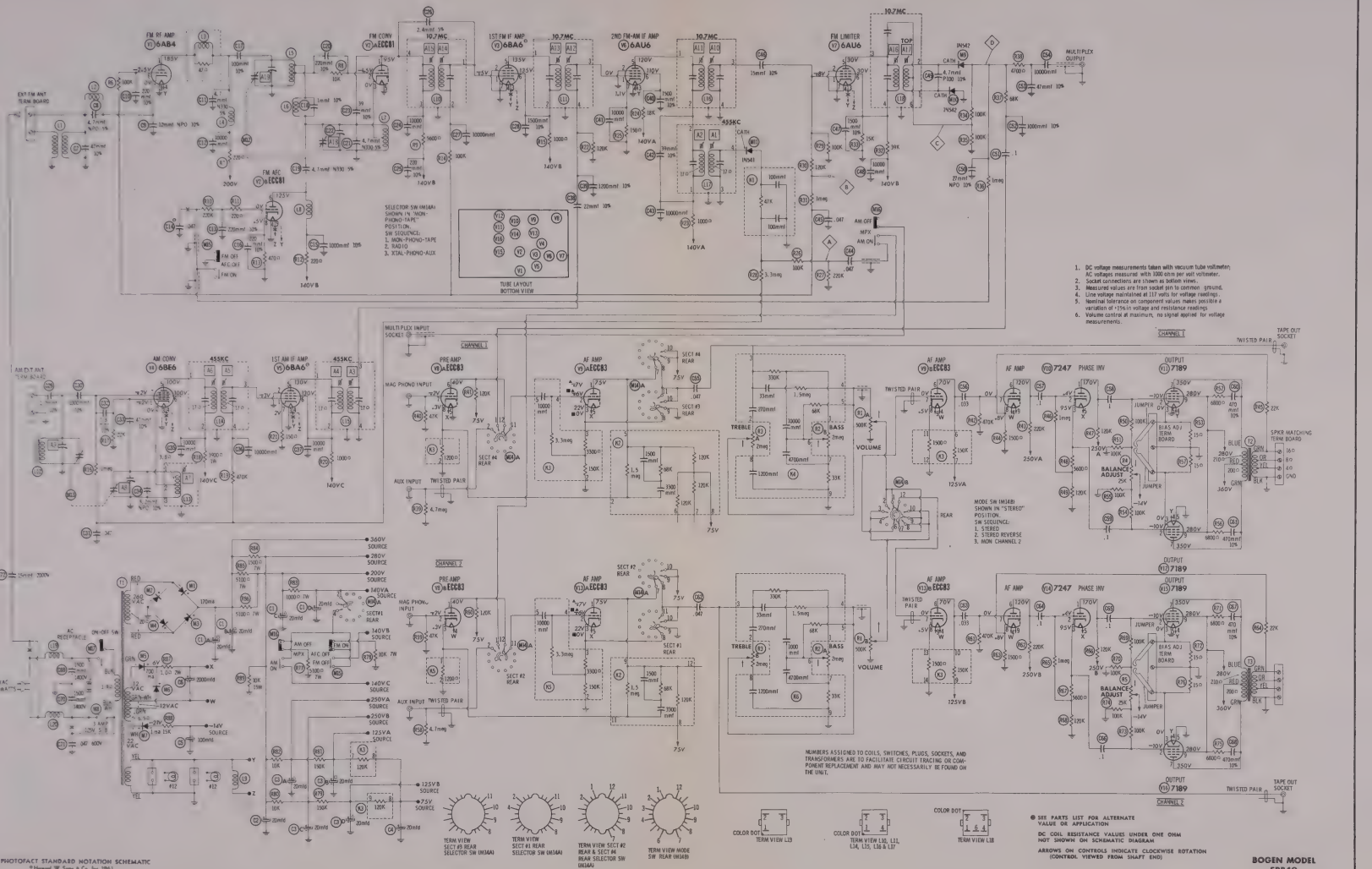
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AB4	†2700Ω	0Ω	0Ω	.1Ω	0Ω	1.3meg	0Ω		
V2	ECC81 12AT7	†9100Ω	10K	0Ω	0Ω	0Ω	†3700Ω	1.4meg ◓220K	470Ω	.1Ω
V3	6BA6	1.3meg	0Ω	.1Ω	0Ω	†4500Ω	†4500Ω	0Ω		
V4	6BE6	22K	0Ω	0Ω	.1Ω	†7400Ω	†7400Ω	4.6meg		
V5	6BA6	4.1meg	0Ω	0Ω	.1Ω	†4500Ω	†4500Ω	150Ω		
V6	6AU6	120K	0Ω	.1Ω	0Ω	†4500Ω	†21K	150Ω		
V7	6AU6	100K	0Ω	.1Ω	0Ω	†20K	†20K	0Ω		
V8	ECC83 12AX7	†400K	47K	1200Ω	.1Ω	.1Ω	†400K	47K	1200Ω	0Ω
V9	ECC83 12AX7	†400K	3.3meg	150K ■0Ω	.1Ω	.1Ω	†310K	0Ω	1500Ω	NC
V10	7247	†130K	1.1meg	125K	.1Ω	.1Ω	†230K	470K	1500Ω	NC
V11	7189	NC	130K	0Ω	.1Ω	0Ω	NC	†210Ω	NC	†1500Ω
V12	7189	NC	130K	0Ω	.1Ω	0Ω	NC	†200Ω	NC	†1500Ω
V13	ECC83 12AX7	†400K	3.3meg	150K ■0Ω	.1Ω	.1Ω	†310K	0Ω	1500Ω	NC
V14	7247	†120K	1.1meg	125K	.1Ω	.1Ω	†230K	470K	1500Ω	NC
V15	7189	NC	130K	0Ω	.1Ω	0Ω	NC	†210Ω	NC	†1500Ω
V16	7189	NC	130K	0Ω	.1Ω	0Ω	NC	200Ω	NC	†1500Ω

ALL MEASUREMENTS MADE IN "AM-FM STEREO" POSITION UNLESS OTHERWISE DESIGNATED.
■ MEASURED IN "MAG PHONO" POSITION.
▲ MEASURED FROM CATHODE.
NC NO CONNECTION
◓ MEASURED WITH "AFC" OFF.
† MEASURED FROM OUTPUT OF M1 & M3.



CHASSIS—TOP VIEW


FM RF AMP
6AB4
FM CONV
6ECC81
10.7MC
1ST FM IF AMP
6BA6
2ND FM-AM IF AMP
6AU6
FM LIMITER
6AU6
FM AFC
6ECC81
TUBE LAYOUT
BOTTOM VIEW
SELECTOR SW (M16A)
SHOWN IN "MON-PHONO-TAPE"
POSITION.
SW SEQUENCE:
1. MON-PHONO-TAPE
2. RADIO
3. XTAL-PHONO-AUX
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.
AM CONV
6BE6
455KC
1ST AM IF AMP
6BA6
PRE AMP
6ECC83
AF AMP
6ECC83
PHASE INV
7247
OUTPUT
7189
CHANNEL 1
CHANNEL 2
MULTIPLEX INPUT SOCKET
MAG PHONO INPUT
AUX INPUT
TWISTED PAIR
TAPE OUT SOCKET
SPKR MATCHING TERM BOARD
TREBLE
BASS
VOLUME
BALANCE ADJUST
BIAS ADJ TERM BOARD
MODE SW (M14B)
SHOWN IN "STEREO"
POSITION
SW SEQUENCE:
1. STEREO
2. STEREO REVERSE
3. MON. CHANNEL 2
AC RECEPTACLE
ON-OFF SW
120VAC
125 mA
360V SOURCE
280V SOURCE
200V SOURCE
140VA SOURCE
140VB SOURCE
140VC SOURCE
250VA SOURCE
250VB SOURCE
125VA SOURCE
125VB SOURCE
75V SOURCE
12VAC
-14V SOURCE
AM OFF
MPX
AFC OFF
FM ON
AM ON
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
TERM VIEW SECT #3 REAR SELECTOR SW (M14A)
TERM VIEW SECT #1 REAR SELECTOR SW (M14A)
TERM VIEW SECT #2 REAR & SECT #4 REAR SELECTOR SW (M16A)
TERM VIEW MODE SW REAR (M14B)
COLOR DOT
TERM VIEW L13
TERM VIEW L30, L31, L34, L35, L36 & L37
TERM VIEW L18
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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BOGEN MODEL
SRB40

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A6, A10 thru A13, A16, A17	GENERAL CEMENT #5097, 8727 WALSCO #2515
A7, A14, A15	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A8, A9, A19	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A18	GENERAL CEMENT # 8721, 8722 WALSCO #2519

AM ALIGNMENT – SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ 30% AM Mod.)	(AM) 1500KC	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	High side to AM antenna terminal. Low side to chassis.	600KC	600KC	"	A7	"
3.	"	1500KC	1500KC	"	A8, A9	Adjust for maximum deflection. Repeat Steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM – SELECTOR IN "AFC OFF" POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side thru .01mfd to pin 2 (grid) of FM Converter. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (B). Common to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum deflection.
5.	"	"	"	DC probe thru 1meg to point (C) Common to chassis.	A16	"
6.	"	"	"	DC probe to point (D). Common to chassis.	A17	Adjust for zero reading. A postive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN "AFC OFF" POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .01mfd to pin 2 (grid) of FM Converter. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (B). Low side to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
5.	"	"	"	Vert. amp. thru 47K to point (C). Low side to chassis.	A16	"
6.	"	"	"	Vert. amp. to point (D). Low side to chassis.	A17	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT – SELECTOR IN AFC OFF POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 270Ω in high side.	105MC (Unmod.)	(FM) 105MC	DC probe to point (B). Common to chassis.	A18, A19	Adjust for maximum deflection & check tracking of unit.

FIG. 1

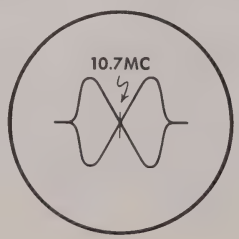
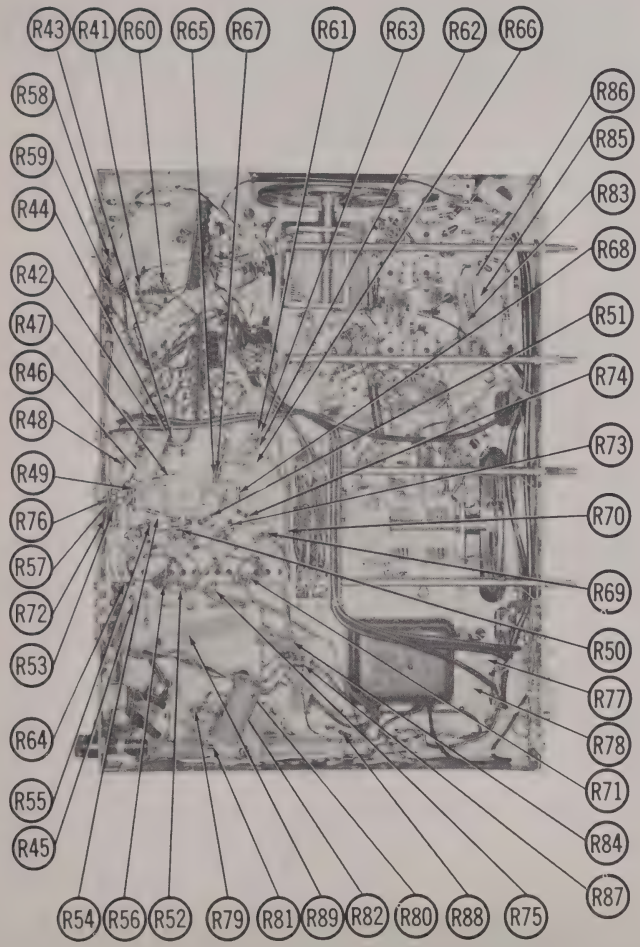
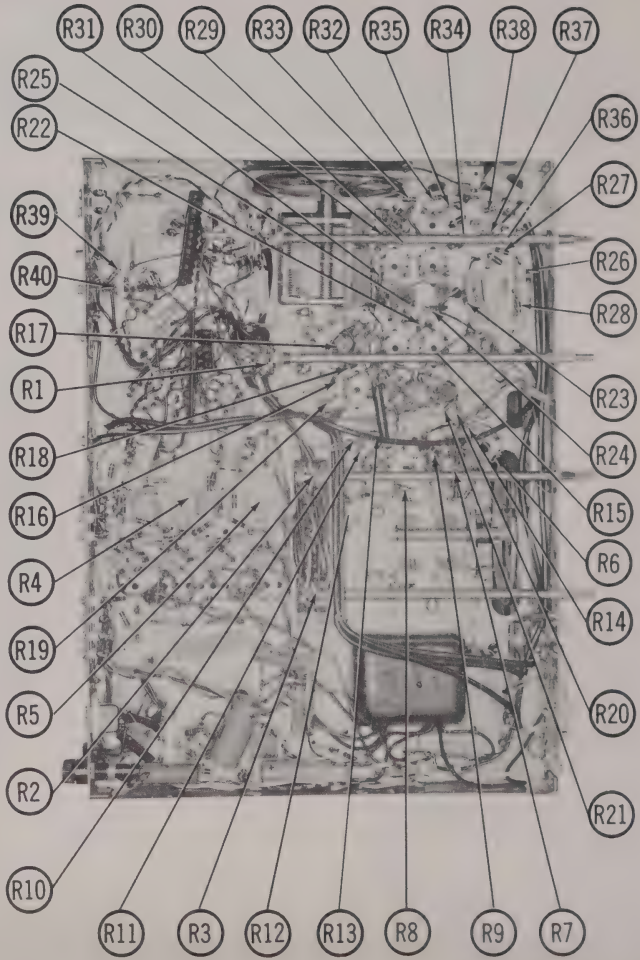


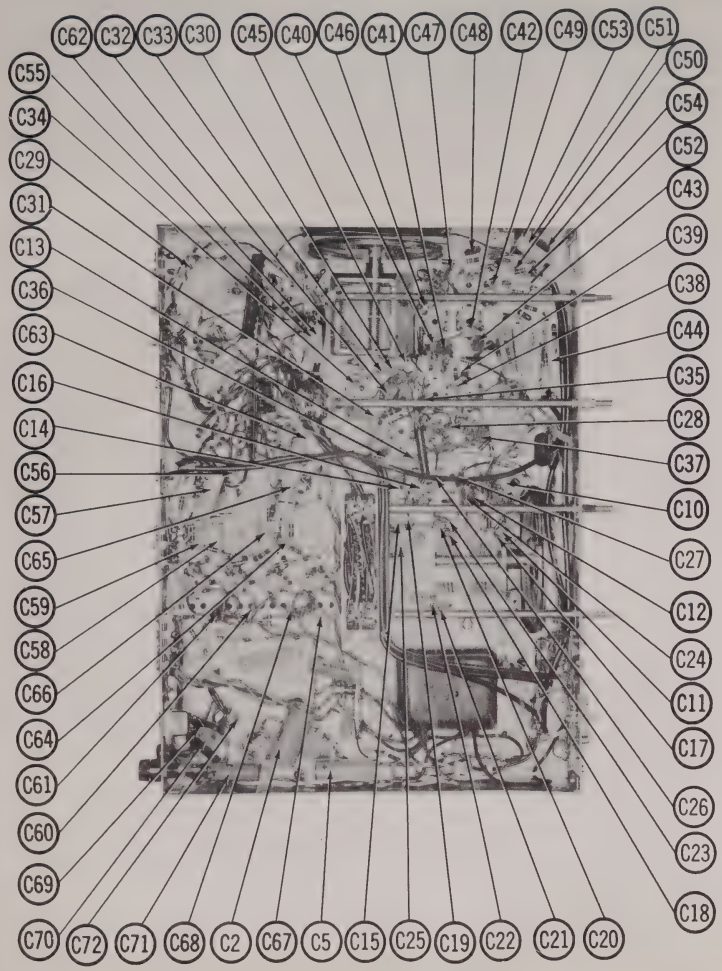
FIG. 2



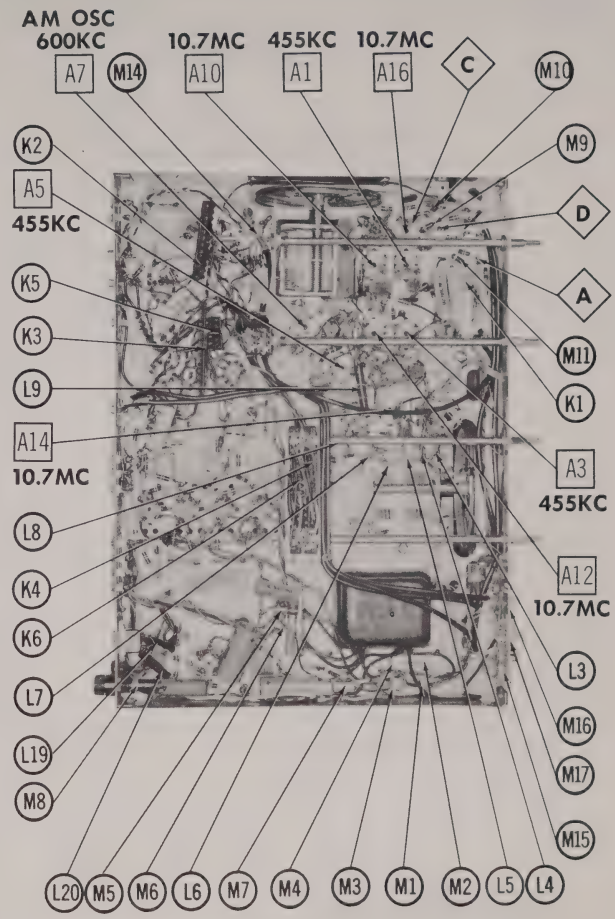
CHASSIS BOTTOM VIEW-RESISTOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW
-ALIGNMENT, INDUCTOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6AB4
V2	FM Conv. -FM AFC	ECC81/12AT7
V3	1st FM IF Amplifier	6BA6 (EF93) *
V4	AM Converter	6BE6
V5	1st AM IF Amplifier	6BA6 (EF93) *
V6	2nd FM-AM IF Amplifier	6AU6
V7	FM Limiter	6AU6
V8	Channel 1 Preamp. - Channel 2 Preamp.	ECC83/12AX7
V9	Channel 1 AF Amp.	ECC83/12AX7
V10	Channel 1 AF Amp. - Phase Inverter	7247
V11	Channel 1 Output	7189
V12	Channel 1 Output	7189
V13	Channel 2 AF Amp.	ECC83/12AX7
V14	Channel 2 AF Amp. - Phase Inverter	7247
V15	Channel 2 Output	7189
V16	Channel 2 Output	7189

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BOGEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■20	450	79-010-031	AFH4-14	D0130	FP444	TMQ-4616	TVL-4763	
B	▲20	450							
C	▲20	450							
D	20	450							
C2	20	350	79-001-116	PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C3A	▲20	450	79-010-031	AFH4-14	D0130	FP444	TMQ-4616	TVL-4763	
B	■20	450							
C	20	450							
D	▲20	450							
C4	20	250	79-010-026	AFH1-27	A0270	FP125		TVLS-1509.1*	
C5	100	25	79-001-049	PRS1270	BBR100-25	TC2501	TD-100-25	TVA-1207	
C6	2000	15	79-010-022	AFH1-03	A0070	WP041	TMS-1050	TVL-1168	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C8	4.7 NPO 5%		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C9	12 NPO 10%		TCZ-12	C10Q12C		CCTO-120	CNO-412	10TCC-Q12
C10	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C11	4.7 N330 5%					*		
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C13	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C14	.047 200V	Note 1	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C15	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C16	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C17	100 10%		DI-100	DD-101	L10T10	CCD-101	GP310	10TS-T10
C18	1 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C19	4.7 10%		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C20	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C21	4.7 N330 5%					*		
C22								
C23	39 10%		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C26	2.4 5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	1500 10%		DI-1500	DD-152	5R5D15	CCD-152	GP215	10TS-D15
C29	1.2 10%			TCZ-1R5	C10V15C		CNO-515	10TCC-V12
C30	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C31	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C32	1.8 10%		NPO-SI 2.0					10TCC-V18
C33	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C34	8.2 NPO 10%		NPO-DI 8.2		C10V82C			10TCC-V82
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	22 10%		DI-22	DD-220	L10Q22	CCD-220	GP422	10TS-Q22
C39	1200 10%		DI-1200	DD-122	5R5D12	CCD-122	GP212	10TS-D12
C40	1500 10%		DI-1500	DD-152	5R5D15	CCD-152	GP215	10TS-D15
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	39 10%		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C45	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C46	15 10%		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C47	1500 10%		DI-1500	DD-152	5R5D15	CCD-152	GP215	10TS-D15
C48	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	4.7 P100 10%					*		
C50	27 NPO 10%		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C51	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C52	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C53	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C54	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C55	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C56	.033 200V		P288N-033	DD-303	CUB2S33	4DP-2-333	GEM-4133	6TM-S33
C57	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C58	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C59	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C60	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C61	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C62	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C63	.033 200V		P288N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C64	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C65	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C66	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C67	470 10%		D1-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C68	470 10%		D1-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C69	1500 1400V		HVD-30-1500	DD30-1500	HVB20D15	3CCD-152	2HV-215	30GA-D15
C70	1500 1400V		HVD-30-1500	DD30-1500	HVB20D15	3CCD-152	2HV-215	30GA-D15
C71	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C72	15 2000V		HVD-30-15	DD30-150	HVA20Q15	3CCD-150	2DY-415	30GA-Q15

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BOGEN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K		77-001-474					Volume, Channel 2
B	500K							Volume, Channel 1
R2A	2meg		77-001-475					Bass, Channel 2
B	2meg							Bass, Channel 1
R3A	2meg		77-001-475					Treble, Channel 2
B	2meg							Treble, Channel 1
R4A	25K		77-001-410	TT-26	B47-25K-S	B11-120	TA253L	Balance Adj., Channel 1
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R5A	25K		77-001-410	TT-26	B47-25K-S	B11-120	TA253L	Balance Adj., Channel 2
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R6	100K				R12	220Ω			
R7	220Ω				R13	470Ω			
R8	10K				R14	100K			
R9	5600Ω				R15	1000Ω			
R10	220K				R16	1meg			
R11	220Ω				R17	22K			

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R18	3900Ω 1W				R54	100K			
R19	470K				R55	100K			
R20	1000Ω				R56	6800Ω			
R21	150Ω				R57	15Ω			
R22	120K				R58	4.7meg			
R23	1000Ω				R59	47K			
R24	18K				R60	120K			
R25	150Ω				R61	470K			
R26	100K				R62	220K			
R27	220K				R63	1500Ω			
R28	3.3meg				R64	22K			
R29	100K				R65	1meg			
R30	120K				R66	120K			
R31	1meg				R67	5600Ω			
R32	39K				R68	120K			
R33	15K				R69	100K			
R34	100K				R70	100K			
R35	100K				R71	6800Ω			
R36	1meg				R72	15Ω			
R37	68K				R73	100K			
R38	4700Ω				R74	100K			
R39	4.7meg				R75	6800Ω			
R40	47K				R76	15Ω			
R41	120K				R77	5100Ω 7W	PW10-5100	7W-SQ-5000	
R42	470K				R78	10K 7W	PW10-10000	7W-SQ-10000	
R43	220K				R79	150K			
R44	1500Ω				R80	10K			
R45	22K				R81	150K			
R46	1meg				R82	10K			
R47	120K				R83	1000Ω 7W	PW10-1000	7W-SQ-1000	
R48	5600Ω				R84	1500Ω 7W	PW10-1500	7W-SQ-1500	
R49	120K				R85	5100Ω 7W	PW10-5100	7W-SQ-5100	
R50	100K				R86	5100Ω 7W	PW10-5100	7W-SQ-5100	
R51	100K				R87	1.0Ω 2W			
R52	6800Ω				R88	15K			
R53	15Ω				R89	10K 15W			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	BOGEN PART No.	REPLACEMENT DATA	
K1	AM Diode RF Filter	100mmf, 100mmf, 47K	78-907-001	Aerovox	PA-97
				Centralab	PC-50
				Cornell-Dubilier	1HTM1
				Sprague	D-1

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS (cont)

ITEM No.	USE	DESCRIPTION	BOGEN PART No.	REPLACEMENT DATA
K2	Stereo Circuit	(2) 1500mmf, (2) 3300mmf, (2) 68K, (4) 120K, (2) 1.5meg	78-916-001	
K3	Stereo Circuit	10000mmf, 1200Ω, (2) 1500Ω, 3300Ω, (2) 120K, (3) 150K, 3.3meg	78-909-001	
K4	Stereo Circuit	33mmf, 270mmf, 1000mmf, 1200mmf, 4700mmf, 33K, 68K, 330K, 1.5meg	78-910-001	
K5	Stereo Circuit	10000mmf, 1200Ω, 3300Ω, 150K, 3.3meg	78-911-001	
K6	Stereo Circuit	33mmf, 270mmf, 1000mmf, 1200mmf, 4700mmf, 33K, 68K, 330K, 1.5meg	78-910-001	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: BOGEN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	FM Ant.	95-5017-01					① Wound on 47Ω
L2	RF Choke (1uh)	95-5016-01	BC-561	4602	RTC-8515	T855	② IRC Part #CLA
L3	RF Choke	95-5001-01 ①					
L4	RF Choke (1.5uh)	95-5005-02	BC-562	4604	RTC-8516	T856	
L5	FM RF	95-0003-24					
L6	RF Choke (1.5uh)	95-5005-02	BC-562	4604	RTC-8516	T856	
L7	FM Osc.	95-0003-25					
L8	RF Choke (1uh)	95-5019-01 ②	BC-561	4602	RTC-8515	T855	
L9	Fil. Choke (1.7uh)	95-5015-01	BC-562	4604	RTC-8516	T856	
L10	1st FM IF	95-5021-01	FM-254	1463	RTC-8599	T633	
L11	2nd FM IF	95-5010-01	FM-254	1463	RTC-8599	T633	
L12	Loopstick	95-5008-01	BC-419	705-A		T532	
L13	AM Osc.	95-5009-01	BC-392	A-121-C	RTC-8760	T508	
L14	1st AM IF	95-5013-01	BC-352	12-C1	RTC-8632	T607	
L15	2nd AM IF	95-5013-01	BC-353	12-C2	RTC-8633	T608	
L16	3rd FM IF	95-5010-01	FM-254	1463	RTC-8599	T633	
L17	3rd AM IF	95-5013-01	BC-353	12-C2	RTC-8633	T608	
L18	Discriminator	95-5020-01	FM-253	1464	RTC-8665	T634	
L19	Line Choke (1.7uh)	95-5015-01	BC-562	4604	RTC-8516	T856	
L20	Line Choke (1.7uh)	95-5015-01	BC-562	4604	RTC-8516	T856	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA: BOGEN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ⓐ 1.3A	260V ⓐ .350A AC	6.3V ⓐ 5.4A	83-630-000					
	SEC. 3	SEC. 4	SEC. 5						
	40V ⓐ .010A AC Tap ⓐ 24VCT ⓐ .700A DC								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: BOGEN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8800Ω CT	16Ω Tap ⓐ 8Ω, 4Ω	83-313-000					
T3	8800Ω CT	16Ω Tap ⓐ 8Ω, 4Ω	83-313-000					

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA: BOGEN PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.170A	96-5023-01 *	1N1763 *	40H *	SR500 *	* Silicon Type
M2	.170A	96-5023-01 *	1N1763 *	40H *	SR500 *	♦ Selenium Type
M3	.170A	96-5023-01 *	1N1763 *	40H *	SR500 *	
M4	.170A	96-5023-01 *	1N1763 *	40H *	SR500 *	
M5	.700A	96-5022-01 *	1N1763 *	F-5 *	SR500 *	
M6	.700A	96-5023-01 *	1N1763 *	F-5 *	SR500 *	
M7	.001A	86-0016-01 ♦		62A ♦		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: BOGEN PART No. FUSE	BOGEN PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M8	3AG	3A 125V S/B			313003 (3AG 3A 125V S/B)	342001	MDX 3	HKP

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: BOGEN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M9	1N542	1N542		1N295	1N295	FM Detector (Pigtail)
M10	1N542	1N542		1N295	1N295	FM Detector (Pigtail)
M11	1N541	1N541		1N60	1N60	AM Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	BOGEN PART No.	NOTES
M12	Tuning Cap.	80-0121-01	FM, 2 Gang
M13	Tuning Cap.	80-0120-01	AM, 2 Gang (Ant. 36—579mmf, Osc. 21—172mmf)
M14A	Switch	81-001-514	Function Selector (Rotary Wafer Type)
B	Switch		Mode
M15	Switch	81-003-001	FM-AFC-FM Off (3-Position DP Slide Type)
M16	Switch	81-003-001	AM On-Muit. -AM Off (3-Position DP Slide Type)
M17	Switch	81-003-004	Power Off-On (SPST Slide Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	12-4008-21	
Knob	03-0548-01	Tuning
Knob	03-0548-03	Rear
Knob	03-0524-01	Front

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

**CONTINENTAL
MODEL M-431**

CONTINENTAL
MODEL M-431

CONTINENTAL
MODEL M-431

TRADE NAME	Continental Model M-431
IMPORTER	Continental Merchandise Co., Inc., 236 Fifth Ave., New York 1, N. Y.
TYPE SET	Battery Operated 4 Tube Portable AM Receiver
POWER SUPPLY	1.5 Volts DC "A" Supply & 67.5 Volts DC "B" Supply
RATING	250MA @ 1.5 Volts DC & 10MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	525 —1650KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3... GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298
WALSCO #2516, 2518, 2519
A4, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KF411

DATE 5—61

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA)
V1	Converter	1R5
V2	IF Amplifier	1T4
V3	Det.-AVC-AF Amp.	1S5
V4	Output	3S4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Continental PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	10	100		SRE150V10	NLW10-100	TT150X10	MLV10-100	TE-1407	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2A	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
B	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C	250		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25
D	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
E	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C3	100		1468-0001	TCZ-100	5W5T1	CM-19B-101M	MC235	1FM-31
C4	.001 120V		V84C6D1	DD-102	CUB6D1	6DP-1-102	GEM-621	6TM-D10
C5	250		1468-00025	TCZ-240	5W5T5	CM-19B-251M	MC240	1FM-325
C6	.005 120V		V84C6D5	DD-502	CUB6D5	6DP-1-502	GEM-625	6TM-D50

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Continental PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1meg	½						Volume & Switch

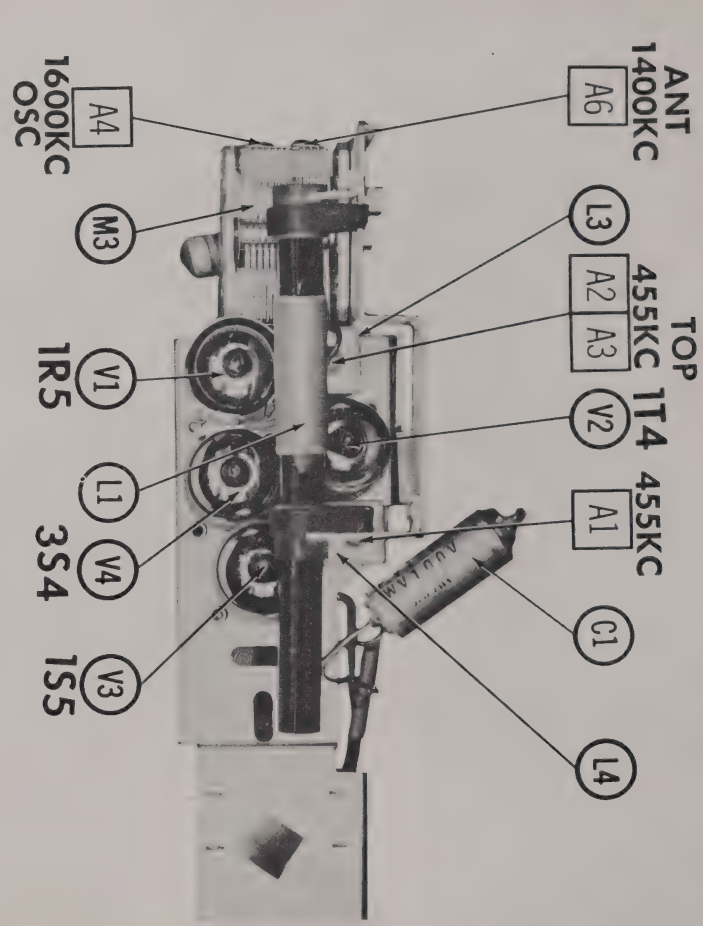
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	REPLACEMENT DATA WORKMAN TV PART No.	REMARKS
R2	100K			
R3	10K			
R4	3.3meg			
R5	10meg			
R6	220K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	REPLACEMENT DATA WORKMAN TV PART No.	REMARKS
R7	1meg			
R8	1meg			
R9	430Ω			
R10	3.3meg			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Continental PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick					
L2	Osc.	535-C				
L3	Input IF	412-A				
L4	Output IF	412-B				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Continental PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	5000Ω	10-12Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Continental PART No.	QUAM PART No.	
SP1	2½"	PM	10-12Ω			

BATTERIES

ITEM No.	VOLTAGE	Continental PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	67½V	BL-045		UX45		416		M217	
M2	1½V	UM-1	230		A100		M-13R		

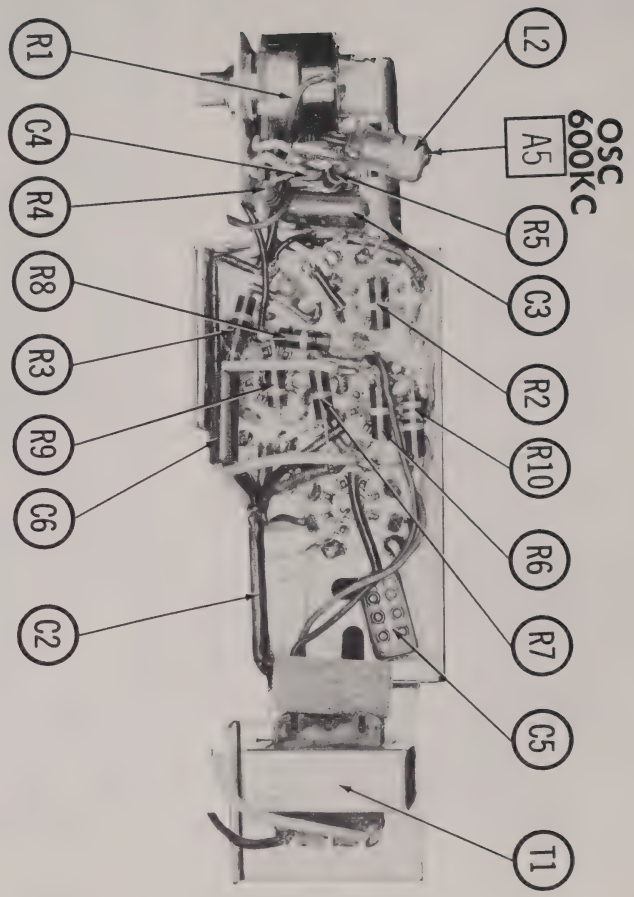
MISCELLANEOUS

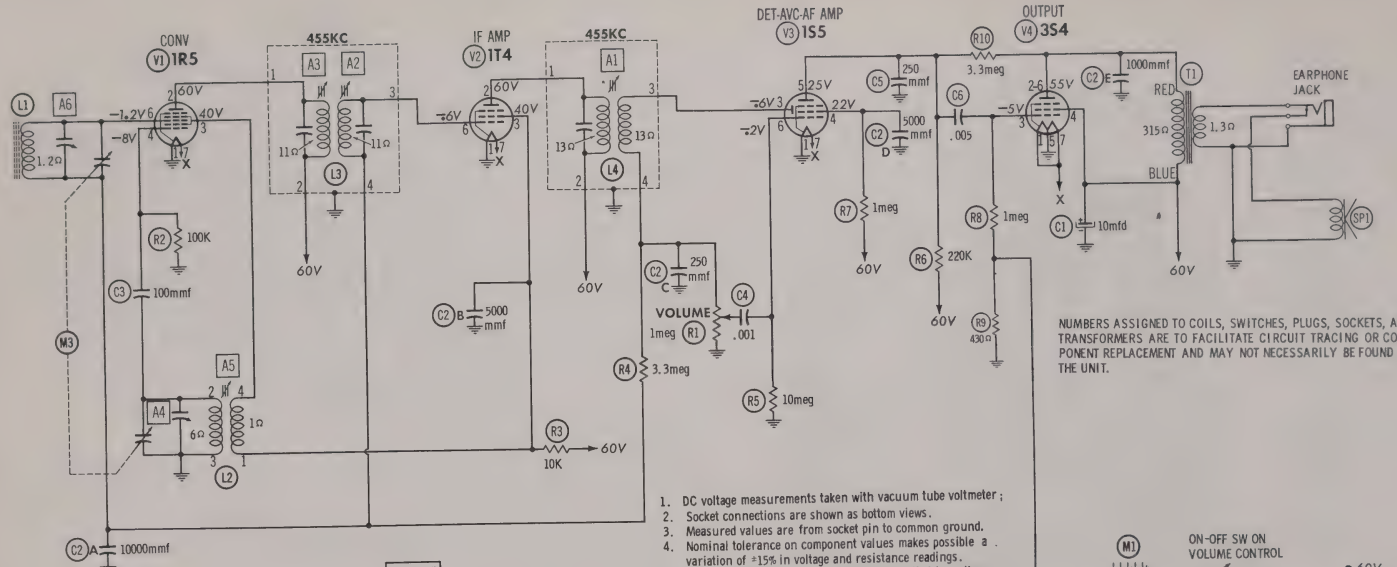
ITEM No.	PART NAME	Continental PART No.	NOTES
M3	Tuning Cap.	PV-A	2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

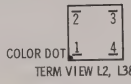
CHASSIS—BOTTOM VIEW



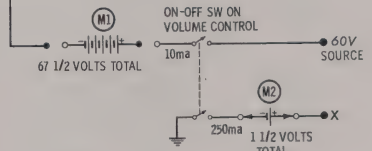


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter;
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.



COLOR DOT
TERM VIEW L2, L3&L4.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	0Ω	†10Ω	†10K	100K	NC	4.3meg	•
V2	1T4	0Ω	†12Ω	†10K	TP	TP	4.3meg	•
V3	1S5	0Ω	NC	1meg	†1meg	†220K	10meg	•
V4	3S4	•	†315Ω	1meg	†0Ω	0Ω	†315Ω	•

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM POSITIVE BATTERY CONNECTOR.

NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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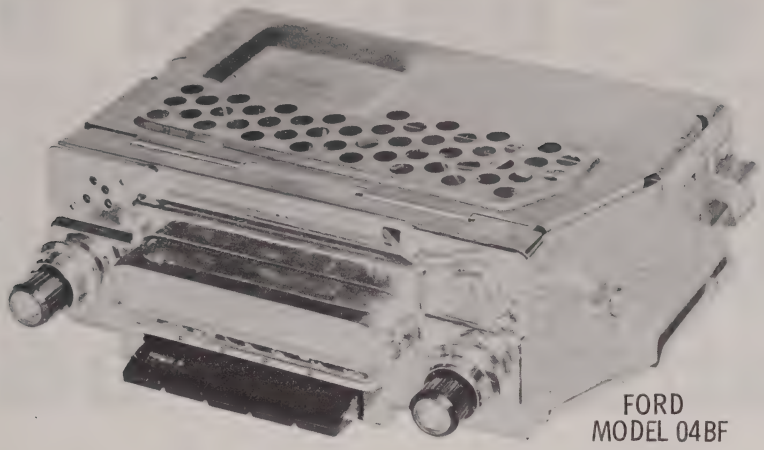
CONTINENTAL
MODEL M-431

PHOTOFACT® Folder with CIRCUITRACE®

FORD MODEL 04BF (Late Prod), 14BF
MERCURY MODEL 14BM

FORD MODEL 04BF (Late Prod), 14BF
MERCURY MODEL 14BM



FORD
MODEL 04BF

FORD MODEL 04BF (Late Prod), 14BF
MERCURY MODEL 14BM

TRADE NAME	Ford Models 04BF (Late Production) (C0AF-18806, C0AZ-18805) For 1960 Fords 14BF (C1AF-18805, C1AF-18806) For 1961 Fords Mercury Model 14BM (C1MF-18805, C1MF-18806) For 1961 Mercurys
MANUFACTURER	The Bendix Corp., Bendix Radio Div., Baltimore 4, Maryland
TYPE SET	Battery Operated 4 Tube, 2 Transistor Custom Built AM Automobile Receiver
POWER SUPPLY	12 Volt Storage Battery RATING 1.5 Amp. @12.6 Volts DC
TUNING RANGE	540 – 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 Thru A4..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A8, A9, A10..... GENERAL CEMENT #8271, 8279, 8897, 9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	262.5KC (400% Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru dummy (Fig. 1) to antenna receptacle.	1605KC	"	"	A5, A6, A7	"
	Step 3 is not necessary unless tuning cores or coils have been replaced or tampered with. If necessary, back tuning cores out of coils but not out of coil forms. Repeat Step 2.					
3.	Thru dummy (Fig. 1) to antenna receptacle.	1200KC	Tuning carriage .285" from high freq. end stop.	Across voice coil.	A8, A9, A10	Adjust for maximum output. Repeat Steps 2 and 3 until no further improvement can be obtained.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull Pushbutton out.
2. Tune manually to desired station.
3. Press Pushbutton in firmly.
4. Repeat for remaining Pushbuttons.

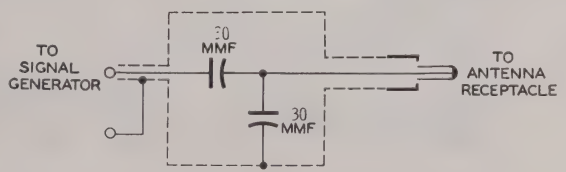


FIG. 1

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KD450

SET 529 FOLDER 6

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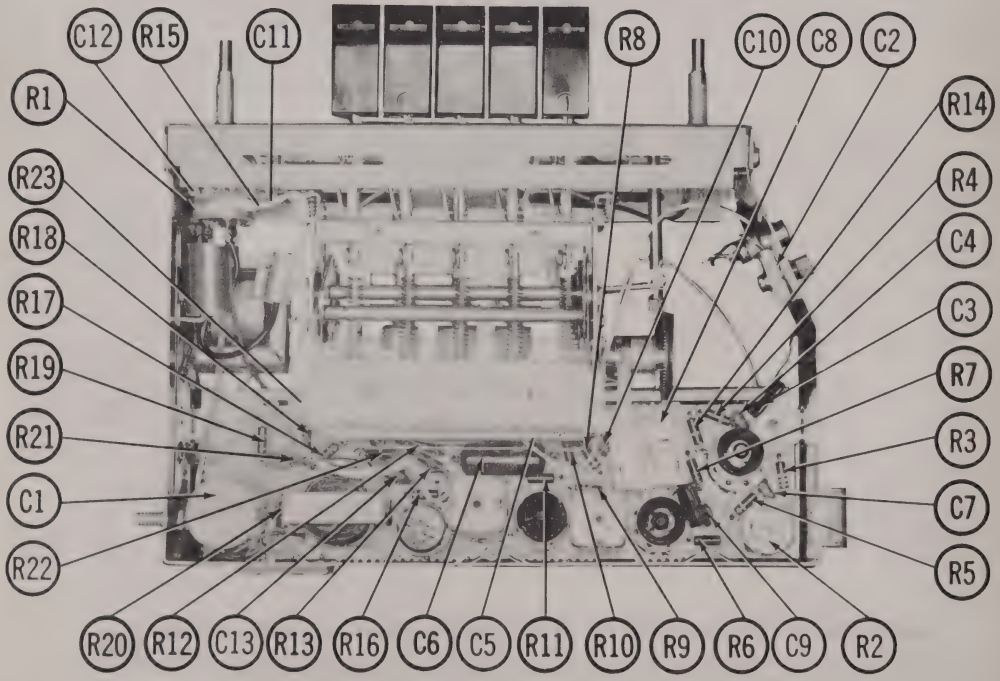
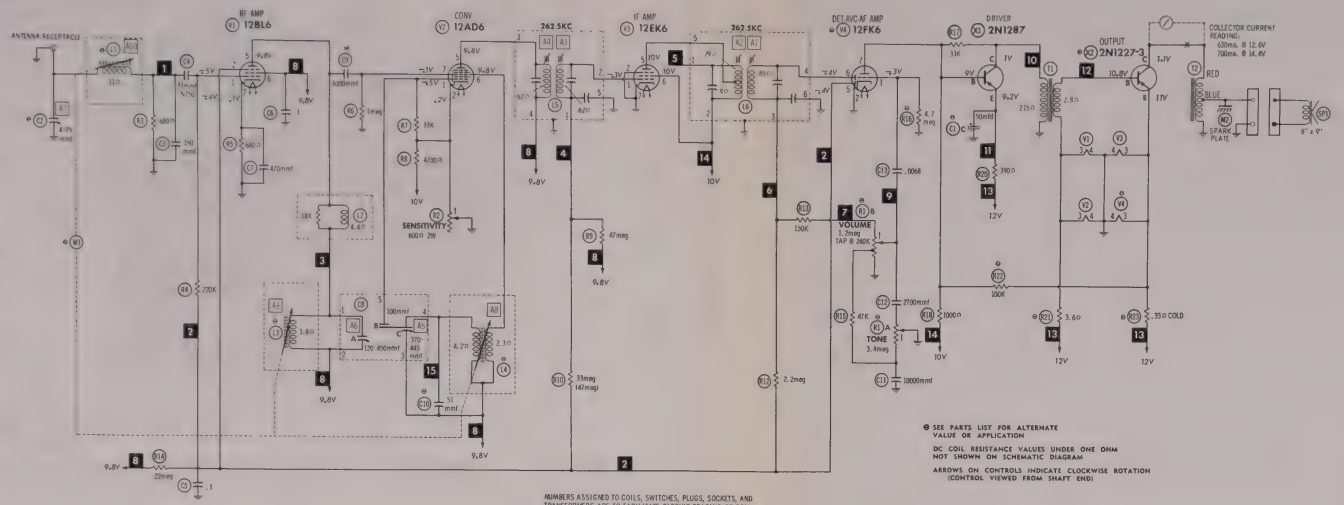
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



CHASSIS TOP VIEW— CAPACITOR AND RESISTOR IDENTIFICATION



● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

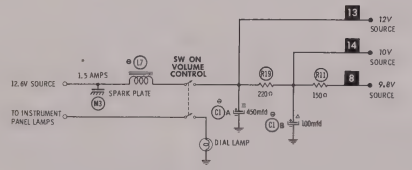
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BL6	3.5meg	3.3meg	270	0Ω	†378Ω	†370Ω	680Ω
V2	12AD6	33K	90Ω	270	0Ω	†430Ω	†378Ω	1meg
V3	12EK6	33meg	0Ω	270	0Ω	†290Ω	†220Ω	0Ω
V4	12FK6	4.7meg	0Ω	270	0Ω	3.2meg	1.1meg	

† MEASURED FROM JUNCTION OF C14 & R14. TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.



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CIRCUITRACE
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FORD MODEL 04BF (Late Prod), 14BF
MERCURY MODEL 14BM

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	• GENERAL ELECTRIC •		RAYTHEON •	SYLVANIA •	
V1	RF Amplifier	12BL6	V3	IF Amplifier	12EK6
V2	Converter	12AD6	V4	Det. -AVC-AF Amp.	12FK6 (12FM6) *

* Alternate

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N1287	Driver	2N591	2N362		PNP
X2	2N1227-3	Output	2N301			PNP Note 1

Note 1. Models 14BF and 14BM may use type 2N1283.
When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	BENDIX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■450	16	220353-16	PWH3-00-92		WP300.8 †		PCLS-3025.2*	①
B	▲100	16							
C	50	16							

† Use printed circuit adaptor kit FPA.
① Some versions may use 450-100-100mfd in this application (Part #2091503-2).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	4-75	#219083-1 ①				462		
C3	150		DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C4	33 N750		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CCTN-330	10TCU-Q33
C5	.1 100V		P288N-1	DF-104	CUB2P1	IDP-2-104	GEM-201	2TM-P10
C6	.1 100V		P288N-1	DF-104	CUB2P1	IDP-2-104	GEM-201	2TM-P10
C7	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C8A	120-450	#219092-2						
B	100							
C	370-445							
C9	1000	②	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	51	③	DI-50	DD-510	L10Q51	CCD-500	GP450	10TS-Q50
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	2700		DI-2700	DD-272	BYA10D27	CCD-272	B-227	10TS-D27

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C13	.0068 100V		P288N-0068	D6-682	CUB6D68	IDP-1-682	GEM-6268	6TM-D68

① Models 14BF and 14BM use 5-80mmf (Part #2091504-2).
② Models 14BF and 14BM use 330mmf
③ Value varies. Replace with original value.
\# Bendix Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BENDIX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	3.4meg	1/2	2090405-1	FB-60		† QJ-1275A	■ UE4137S	Tone Note 1
B	1.2meg			Not Req.				Volume
	240K Tap							
C	Switch			Not Req.				Power Off-On
R2	600Ω	2(WW)	2090181-2			110-600	PFL-600	Sensitivity

Note 1. Models 14BF and 14BM use Part #2090405-8.
† "CONCENTRIKIT" Equivalent: K-8 Kit with base elements and shafts:
B11-140, P14-102 (Panel)
B13-138X, R1-113 (Rear)
76-2 (Switch)
R5 (Retainer)
■ "STA-LOC" equivalent: FB36L, RU125T254, OS1000A, IS1500, US42.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	680K				R14	22meg			
R4	220K				R15	47K			
R5	680Ω				R16	4.7meg			Note 1
R6	1meg				R17	33K			
R7	33K				R18	1000Ω			
R8	4700Ω				R19	220Ω			
R9	47meg				R20	390Ω			
R10	33meg			(47meg) *	R21	3.6Ω			Note 2
R11	150Ω				R22	100K			Note 3
R12	2.2meg				R23	.33Ω Cold			Note 4
R13	150K								

* Models 14BF, 14BM.
Note 1. Value varies 3.3meg-10meg. Replace with original value.
Note 2. Value varies 3-4Ω. Replace with original value.
Note 3. Value varies 47K-150K. Replace with original value.
Note 4. Value varies .3-.5Ω. Replace with original value.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA BENDIX PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	Ant.	①				① Part of M1
L2	RF Choke	2090088-6 ②				② Includes 18K Resistor
L3	RF	①				
L4	Osc.	①				
L5	Input IF	2090907-5				③ #2091107-3 (1.1MH) used in Models 14BF, 14BM
L6	Output IF	2090908-4				
L7	Hash Choke(450uh)	216188-20 ③				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3.8	1	2090433-6					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	REPLACEMENT DATA BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	12Ω Tap@ 6-8Ω	2090849-1					

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA BENDIX PART No.	QUAM PART No.	NOTES
SP1	6"x 9"	PM	6-8Ω	2091269-6	69A2Z8.5	

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M1	Tuner Ass'y.	2090383-2	Complete with pushbuttons, Model 04BF
	Tuner Ass'y.	2090383-5	Complete with pushbuttons, Models 14BF, 14BM
M2	Spark Plate	220267-9	200mmf
M3	Spark Plate	220267-9	200mmf
	Printed Board	2090468-1	Less tubes, Model 04BF
	Printed Board	2091494-1	Less tubes, Models 14BF, 14BM
	Printed Board	2091152	Tone, small board, Model 04BF
	Printed Board	2091152-2	Tone, small board, Models 14BF, 14BM

CABINETS & CABINET PARTS

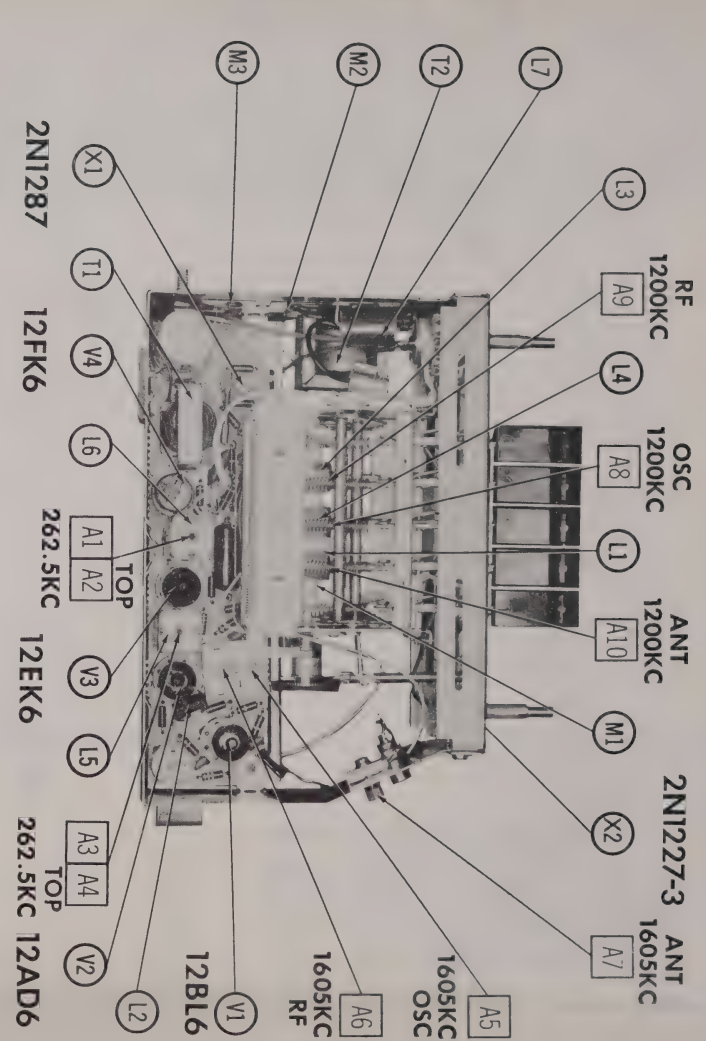
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	2091367-1	Model 14BM
Dial Glass	2091501-1	Model 14BF
Dial Glass	2090409-1	Model 04BF
Dial Pointer	2090129-17	(RCC)
Dial Pointer	2090129-18	GIC
Knob	2090413-1	Tuning, Volume
Knob	2091524-1	Tone, Model 14BM
Knob	2090411-1	Tone, Model 04BF, 14BF
Pushbutton	2090381-2	Models 14BM, 14BF
Pushbutton	2090381-1	Model 04BF

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

CHASSIS—TOP VIEW



PHOTOFACT® Folder

GENERAL ELECTRIC MODEL G7700

GENERAL ELECTRIC
MODEL G7700

GENERAL ELECTRIC
MODEL G7700

TRADE NAME	General Electric G7700
MANUFACTURER	General Electric Co., Radio Receiver Dept., 2200 N. 22nd Street, Decatur, Illinois
TYPE SET	AC Operated 12 Tube Stereo Amplifier
POWER SUPPLY	102 — 125 Volts AC, 60 Cycles RATING 115 Watts, 1 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KV423

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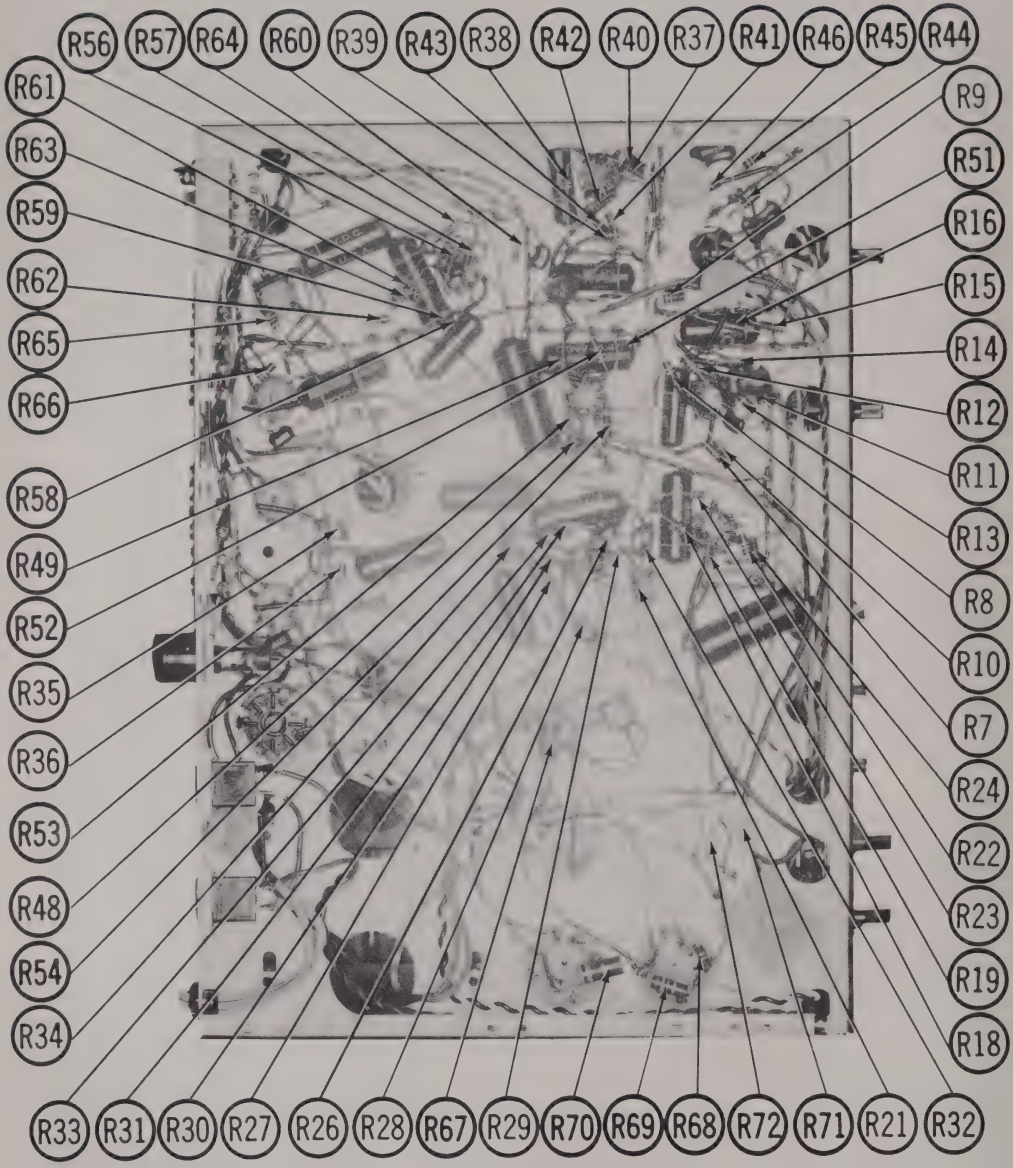
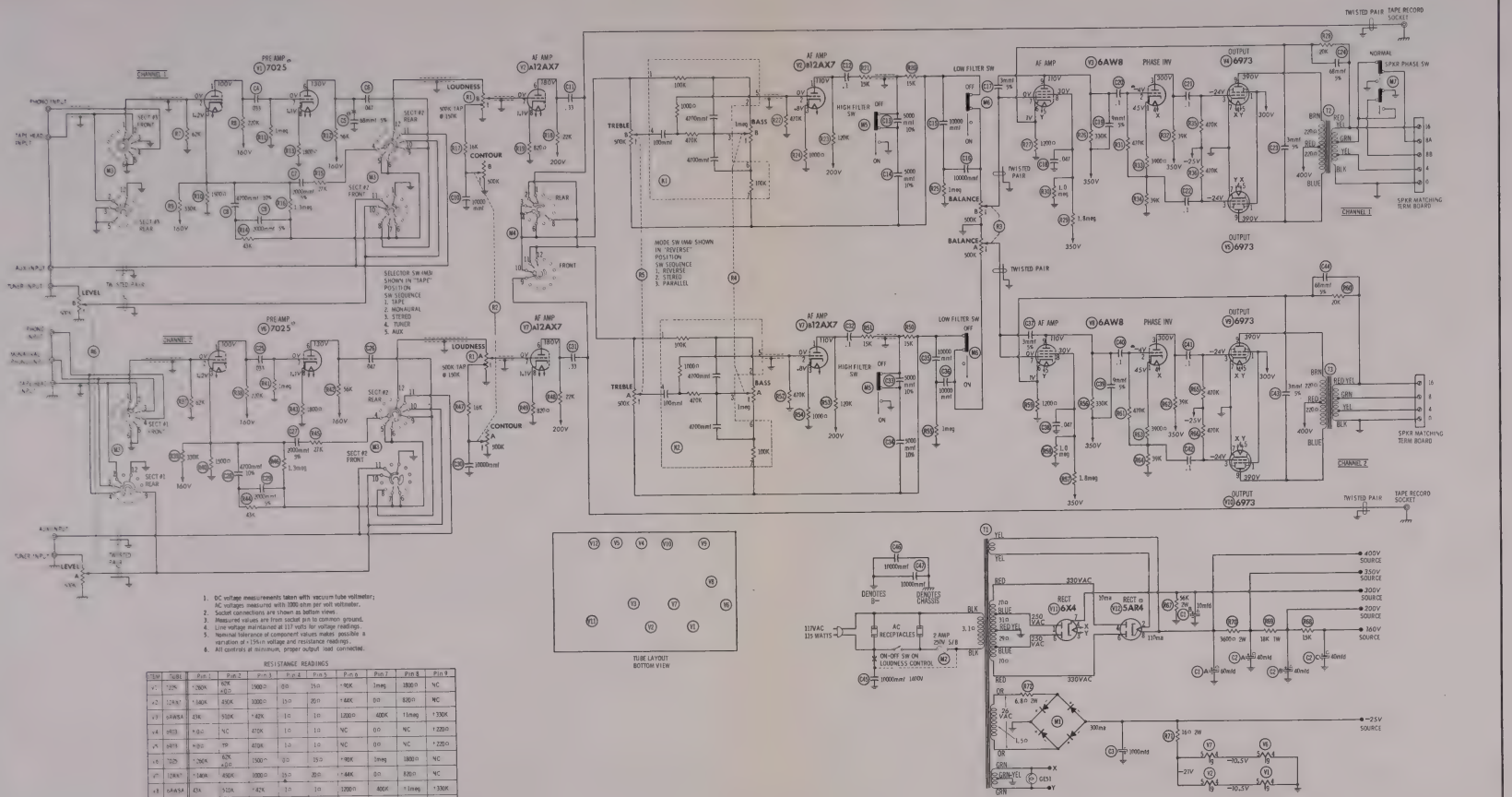


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	SYMBOL	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	7025	62K +260K	1500Ω	0Ω	0Ω	150Ω	*90K	1meg	1800Ω	NC
V2	12AX7	*140K	450K	1000Ω	150Ω	250Ω	*44K	0Ω	820Ω	NC
V3	6AW8A	43K	510K	*42K	1Ω	1Ω	1200Ω	400K	↑1meg	↑330K
V4	6973	↑0Ω	NC	470K	1Ω	1Ω	NC	0Ω	NC	↑220Ω
V5	6973	↑0Ω	↑Ω	470K	1Ω	1Ω	NC	0Ω	NC	↑220Ω
V6	7025	62K +260K	1500Ω	0Ω	0Ω	150Ω	*90K	1meg	1800Ω	NC
V7	12AX7	*140K	450K	1000Ω	150Ω	250Ω	*44K	0Ω	820Ω	NC
V8	6AW8A	43K	510K	*42K	1Ω	1Ω	1200Ω	400K	↑1meg	↑330K
V9	6973	↑0Ω	NC	470K	1Ω	1Ω	NC	0Ω	NC	↑220Ω
V10	6973	↑0Ω	↑Ω	470K	1Ω	1Ω	NC	0Ω	NC	↑220Ω
V11	6X4	330Ω	NC	1Ω	1Ω	NC	290Ω	↑		
V12	5AR4	NC	↑	NC	380Ω	NC	990Ω	NC	↑	

↑ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED FROM PIN 8 OF V12.
• MEASURED FROM PIN 7 OF V11.
NC NO CONNECTION
▬ MEASURED FROM CATHODE
▲ MEASURED IN MON, TUNER OR AUX POSITIONS
TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION OF CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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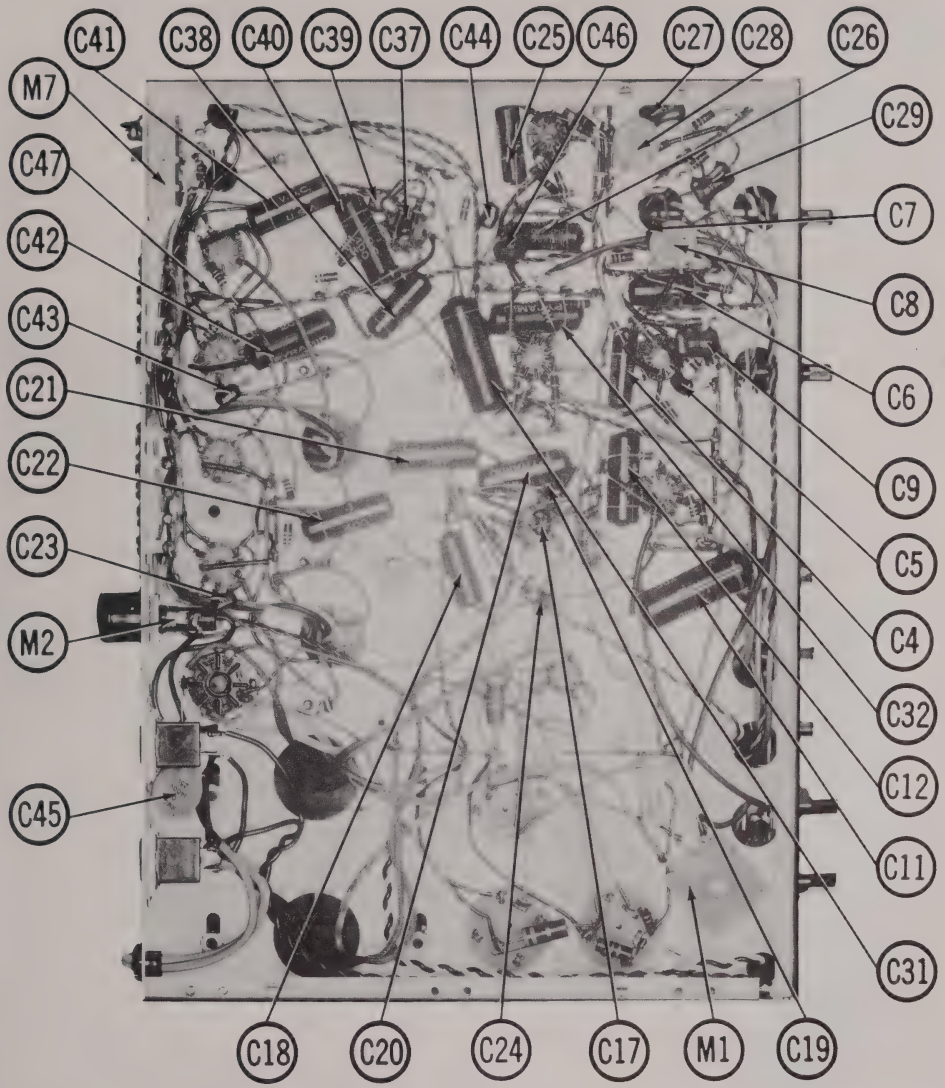
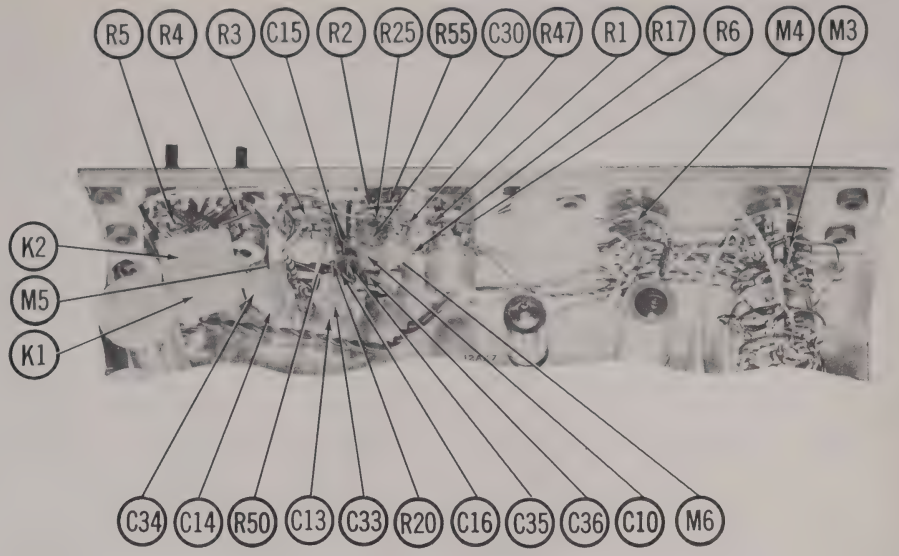
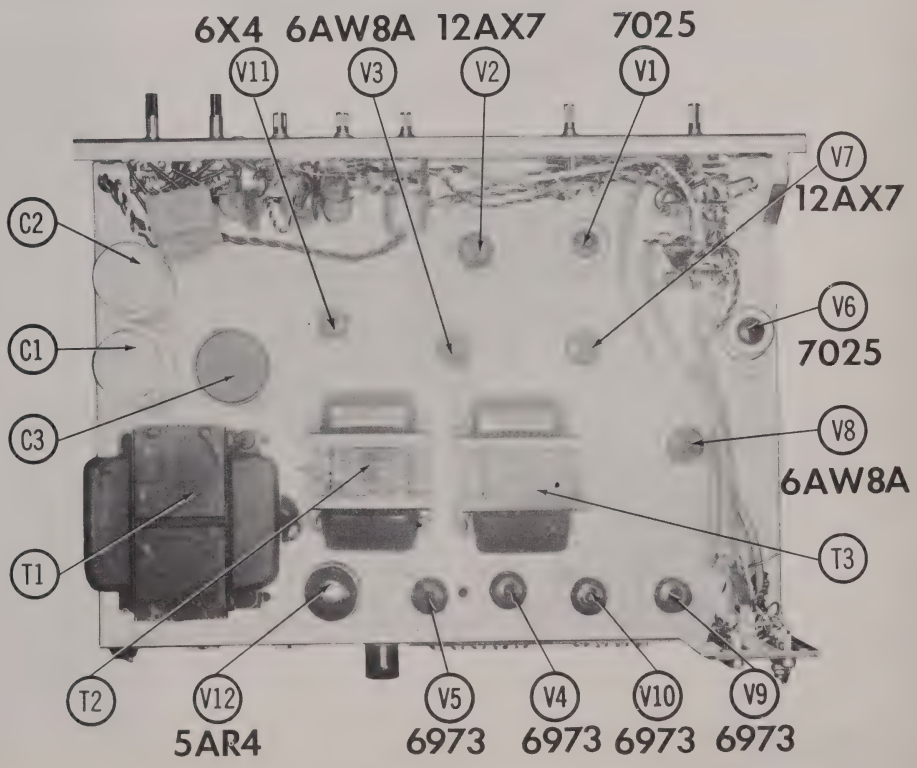
GENERAL ELECTRIC MODEL G7700



CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.



CONTROL PANEL-REAR VIEW



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Channel 1 Preamp.	7025 (12AX7) *
V2	Channel 1 AF Amp.	12AX7
V3	Channel 1 AF Amp. - Phase Inverter	6AW8A
V4	Channel 1 Output	6973
V5	Channel 1 Output	6973
V6	Channel 2 Preamp.	7025 (12AX7) *
V7	Channel 2 AF Amp.	12AX7
V8	Channel 2 AF Amp. - Phase Inverter	6AW8A
V9	Channel 2 Output	6973
V10	Channel 2 Output	6973
V11	Rectifier	6X4
V12	Rectifier	5AR4 (GZ34/5AR4)*

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA G.E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲60	450	ECE-250	AFH2-60	B0460	FP242	TMD-2660	TVL-2768	
B	▲10	450							
C2A	▲40	400	ECE-251	AFH3-44	B0450	FP377.1	TMT-3748	TVL-3787	
B	▲40	300			BR4035				
C	■40	300							
C3	1000	30	ECE-237	AFH1-10			TMS-1120	TVL-1230	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.033 400V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C5	68 5%	Note 1	1469-000068	TCZ-68	22R5Q68	CM-19B-680J	CNO-468	MS-468
C6	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C7	2000 5%				5R5D2	CM-19B-202J	MCE457	MS-22
C8	4700 10%		DI-4700		PM6D47	CCD-472	JL-247	10TS-D47
C9	2000 5%				5R5D2	CM-19B-202J	MCE457	MS-22
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	.33 300V		P488N-33		DPMS4P33	4DP-5-334	GEM-4033	
C12	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C13	5000 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C14	5000 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	3 5%			TCZ-3R3		CCTN-3R3	CNO-533	10TCC-V33
C18	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C19	9 5%		1469-00001	TCZ-10	22R5Q1	CM-19B-100J	CNO-410	MS-41
C20	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C21	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C22	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C23	3 5%			TCZ-3R3		CCTO-3R3	CNO-533	10TCC-V33
C24	68 5%		1469-000068	TCZ-68	22R5Q68	CM-19B-680J	CNO-468	MS-468
C25	.033 400V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C26	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C27	2000 5%				5R5D2	CM-19B-202J	MCE457	MS-22
C28	4700 10%		DI-4700		PM6D47	CCD-472	JL-247	10TS-D47
C29	2000 5%				5R5D2	CM-19B-202J	MCE457	MS-22
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.33 300V		P488N-33		DPMS4P33	4DP-3-334	GEM-4033	
C32	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C33	5000 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C34	5000 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	3 5%			TCZ-3R3		CCTO-3R3	CNO-533	10TCC-V33
C38	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C39	9 5%		1469-00001	TCZ-10	22R5Q1	CM-19B-100J	CNO-410	MS-41
C40	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C41	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C42	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C43	3 5%			TCZ-3R3			CCTO-3R3	CNO-533	10TCC-V33
C44	68 5%		1469-000068	TCZ-68	22R5Q68	CM-19B-680J	CNO-468	MS-468
C45	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C46	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA G.E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	1/2	ERC-369	BT-159 *			FB55T154	Loudness, Channel 2
	150K Tap							
B	500K	1/2		STR-159 *			RU55T154	Loudness, Channel 1
	150K Tap							
C	Shaft			Not Req.			CS3500	
D	Switch			KR-1			US41	Power Off-On
E	SW. Cover			KR-5			Not Req.	
R2A	500K	1/2	ERC-370	B-60	AD47-500K-Z		FA55A	Contour, Channel 2
B	500K			SR-60	Not Req.		RU55A	Contour, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	500K	1/2	ERC-371	B-613			FA55R	Balance, Channel 2
B	500K			SR-60			RU55A	Balance, Channel 1
C	Shaft			Not Req.			CS3500	
R4A	1meg	1/2	ERC-372	F1-51				Bass, Channel 2
B	1meg			R2-51				Bass, Channel 1
C	Spring			AK-32				Friction Drive
R5A	500K	1/2	ERC-373	F1-40			UE4200	Treble, Channel 2
B	500K			R2-40				Treble, Channel 1
C	Spring			AK-32				Friction Drive
R6A	500K	1/2	ERC-366	AB-60			FA55A	Level, Channel 2
B	500K			SR-60			RU55A	Level, Channel 1
C	Shaft			AK-1			CS3500	

* Do not use Tap #1.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	62K			
R8	220K			
R9	330K			
R10	1500Ω			
R11	1meg			
R12	56K			
R13	1800Ω			
R14	43K			
R15	27K			
R16	1.3meg			
R17	16K			
R18	22K			
R19	820Ω			
R20	15K			
R21	15K			
R22	470K			
R23	120K			
R24	1000Ω			
R25	1meg			
R26	330K			
R27	1200Ω			
R28	20K			
R29	1.8meg			
R30	1.0meg			
R31	470K			
R32	39K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R33	3900Ω			
R34	39K			
R35	470K			
R36	470K			
R37	62K			
R38	220K			
R39	330K			
R40	1500Ω			
R41	1meg			
R42	56K			
R43	1800Ω			
R44	43K			
R45	27K			
R46	1.3meg			
R47	16K			
R48	22K			
R49	820Ω			
R50	15K			
R51	15K			
R52	470K			
R53	120K			
R54	1000Ω			
R55	1meg			
R56	330K			
R57	1.8meg			
R58	1.0meg			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R59	1200Ω			
R60	20K			
R61	470K			
R62	39K			
R63	3900Ω			
R64	39K			
R65	470K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R66	470K			
R67	56K 2W			
R68	15K			
R69	18K 1W			
R70	3600Ω 2W			
R71	16Ω 2W			
R72	6.8Ω 2W			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G.E. PART No.	REPLACEMENT DATA
K1	Tone Comp.	100mmf, 4700mmf, 4700mmf, 1000Ω, 100K , 100K, 470K	EEK-010	Aerovox PC-659 Centralab PC-190 Sprague TC-1
K2	Tone Comp.	100mmf, 4700mmf, 4700mmf, 1000Ω, 100K, 100K, 470K	EEK-010	Aerovox PA-659 Centralab PC-190 Sprague TC-1

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	G.E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ 1A	660VCT Ⓐ .120A DC, Tap Ⓐ 500VCT Ⓐ .010A DC (No Signal)	26V Ⓐ .300A DC	ETP-340					
	SEC. 3	SEC. 4	SEC. 5						
	5V Ⓐ 1.9A	6.3VCT Ⓐ 5A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	G.E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7600Ω CT	16Ω Tap Ⓐ 8Ω, 4Ω	ETO-188					
T3	7600Ω CT	16Ω, Tap Ⓐ 8Ω, 4Ω	ETO-188					

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	G.E. PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.300A	EER-013 *				* Bridge Type Selenium

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			G.E. PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE ●	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	2A 250V S/B		EJW-004	313002 (3AG 2A 250V) S/B	342001	MDX 2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	G.E. PART No.	NOTES
M3	Switch	ESW-116	Function Selector, (Rotary Wafer Type)
M4	Switch	ESW-117	Mode (Rotary Wafer Type)
M5	Switch	ESW-118	Hi Filter (DPDT, Slide Type)
M6	Switch	ESW-118	Lo Filter (DPDT, Slide Type)
M7	Switch	ESW-119	Speaker Phase (DPDT, Slide Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	EDK-626	Selector
Knob	EDK-627	Mode
Knob	EDK-628	Loudness, Contour, Balance
Knob	EDK-629	Tone (Outer)
Knob	EDK-630	Tone (Inner)
Cabinet	EAV-1012	Brown
Cabinet	EAV-1013	White

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

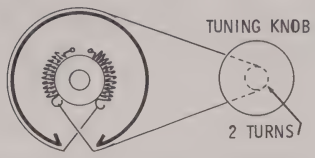
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

HITACHI MODEL TH-627R

HITACHI MODEL TH-627R

TUNING DRIVE CORD STRINGING



TUNING GANG FULLY COUNTER CLOCKWISE

FRONT VIEW

HITACHI MODEL TH-627R

TRADE NAME	Hitachi Model TH-627R
IMPORTER	Electronic Utilities Co., Div. of the Sampson Co., 2244 S. Western Ave., Chicago 8, Illinois
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	5MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 — 1605KC
	15MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3.....GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A4, A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A5.....GENERAL CEMENT #9440

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

SET 529 FOLDER 8

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF510

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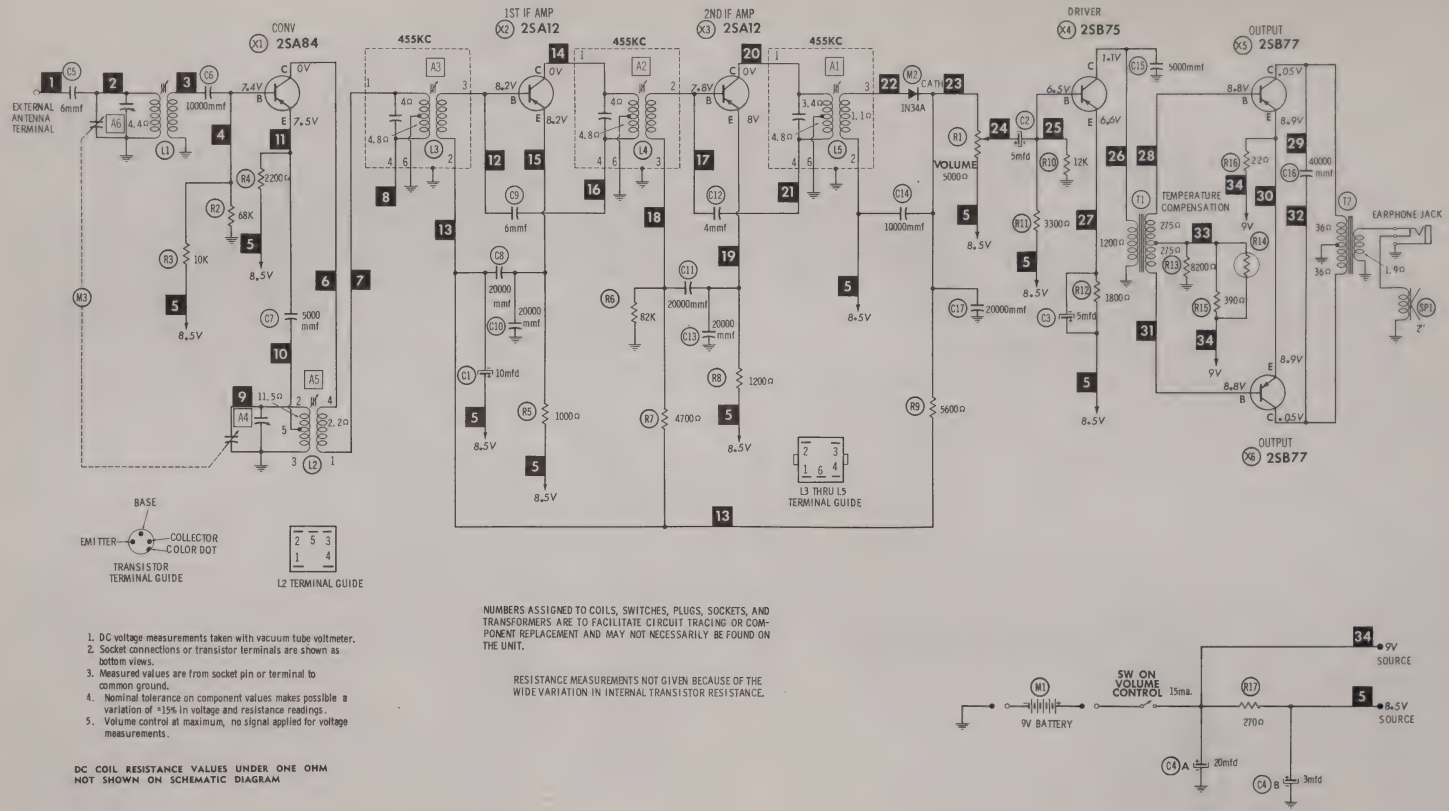

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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HITACHI MODEL TH-627R

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2SA84	Converter	2N412			PNP
X2	2SA12	1st IF Amplifier	2N410			PNP
X3	2SA12	2nd IF Amplifier	2N410			PNP
X4	2SB75	Driver	2N406			PNP
X5	2SB77	Output	2N408			PNP
X6	2SB77	Output	2N408			PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HITACHI PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	10	3				TT3X10			
C2	5	3				TT6X5			
C3	5	3				TT6X5			
C4A	20	10							
B	3	10							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	6			DD-060	C10V6C			
C6	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C7	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C8	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C9	6			DD-060	C10V6C			
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C12	4				C10V4C			
C13	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C14	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C15	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C16	40000							
C17	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	HITACHI PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10						Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	68K				R10	12K			
R3	10K				R11	3300Ω			
R4	2200Ω				R12	1800Ω			
R5	1000Ω				R13	8200Ω			
R6	82K				R14	Temp. Comp.			
R7	4700Ω				R15	390Ω			
R8	1200Ω				R16	22Ω			
R9	5600Ω				R17	270Ω			

PRINTED BOARD

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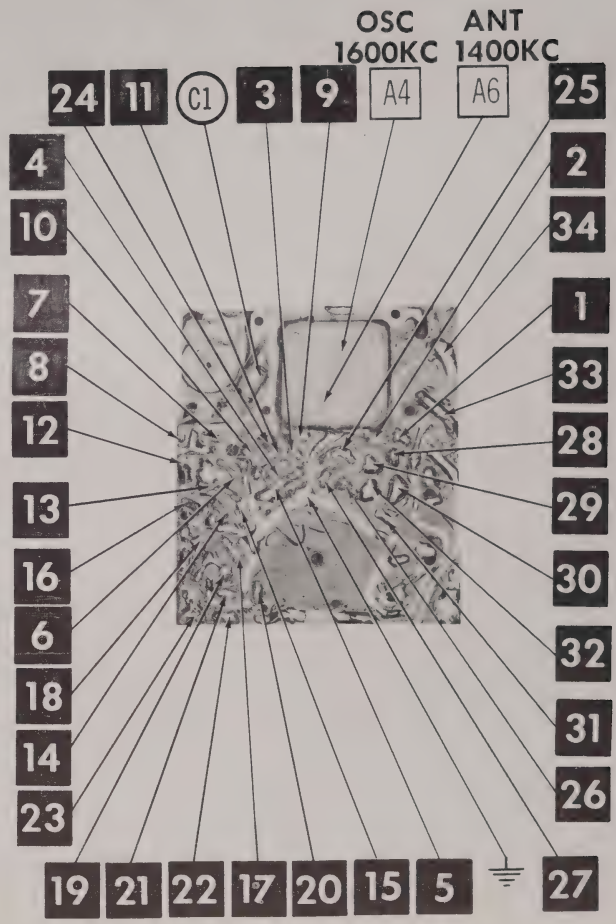


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		HITACHI PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1 L2 L3 L4 L5	Loopstick Osc. 1st IF 2nd IF 3rd IF					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HITACHI PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.7	1	CT-69					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HITACHI PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	700Ω CT	10-12Ω	OT-72					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HITACHI PART No.	QUAM PART No.	
SP1	2"	PM	10-12Ω	SP5011		

BATTERIES

ITEM No.	VOLTAGE	HITACHI PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	006P		2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		HITACHI PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N34A			1N34A	1N34A	Detector (Pigtail)

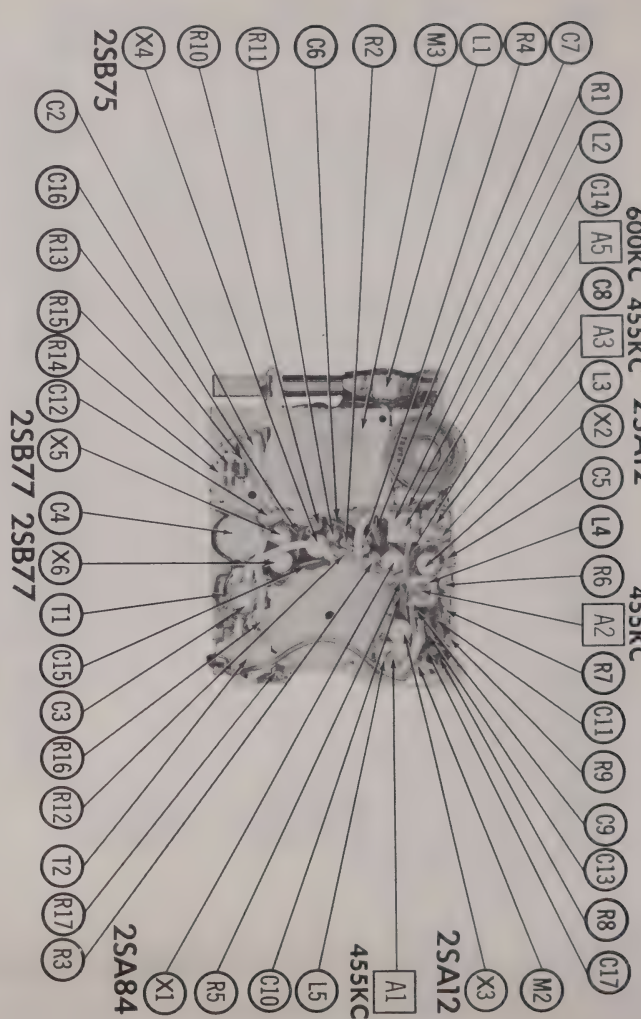
MISCELLANEOUS

ITEM No.	PART NAME	HITACHI PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

KOWA MODEL KT-62A

KOWA MODEL KT-62A

KOWA MODEL KT-62A

TRADE NAME	Kowa Model KT-62A
IMPORTER	Longwood Radio Distributors, Inc., 1261 Broadway, Suite 704, New York 1, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC RATING 5MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC 15MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5.... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A6..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

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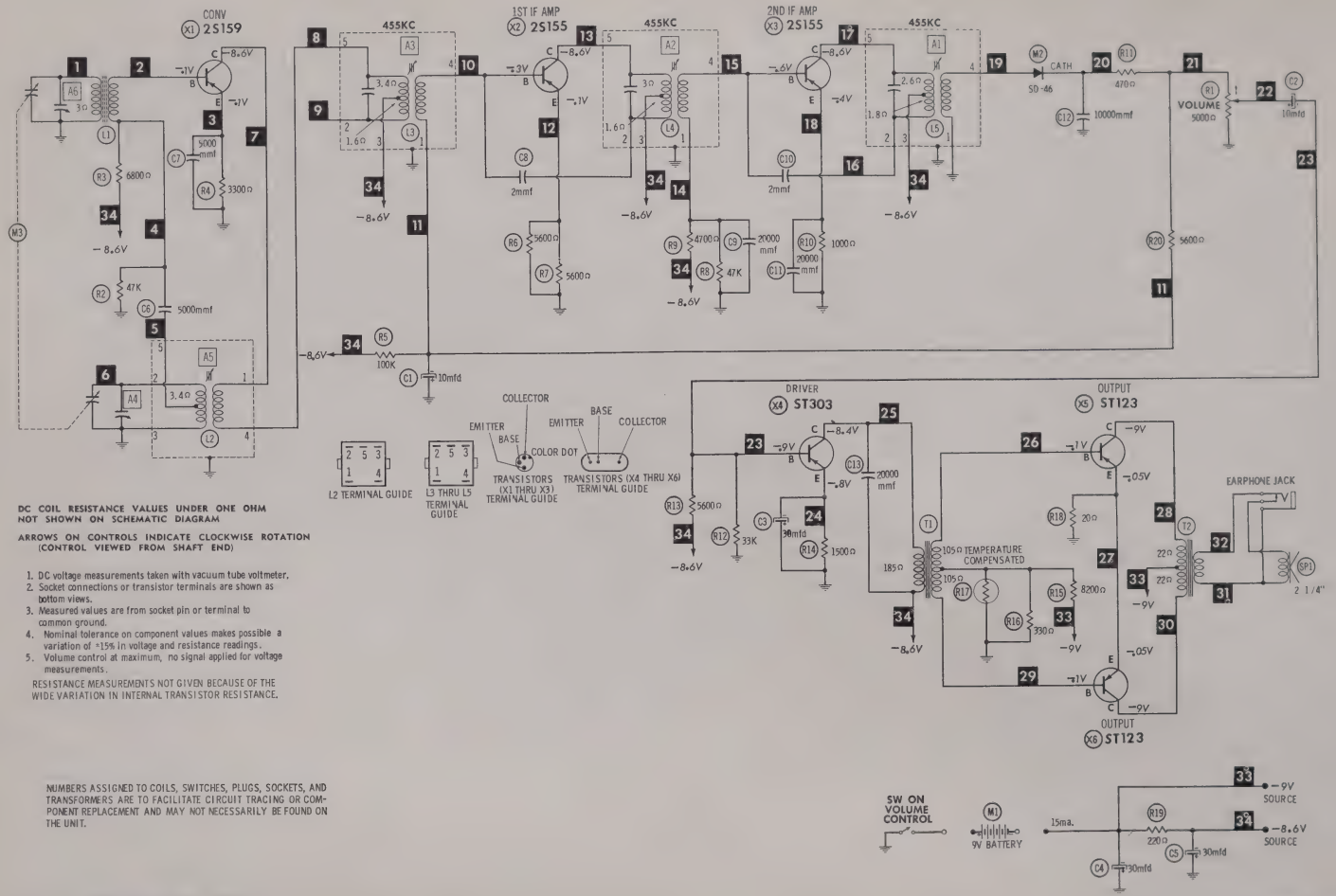
KF586

SET 529 FOLDER 9



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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KOWA MODEL KT-62A

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S159	Converter	2N406			PNP
X2	2S155	1st IF Amplifier				PNP
X3	2S155	2nd IF Amplifier				PNP
X4	ST303	Driver				PNP
X5	ST123	Output				PNP
X6	ST123	Output				PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	KOWA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	10	3		PTT-3010	NLW10-6	TT3X10	MLV10-3	TE-1053	
C2	10	3		PTT-3010	NLW10-6	TT3X10	MLV10-3	TE-1053	
C3	30	3		PTT-3030	NLW30-6	TT6X30	MLV30-6	TE-1092	
C4	30	10		PTT-10030	NLW30-15	TT15X30	MLV35-15	TE-1158	
C5	30	10		PTT-10030	NLW30-15	TT15X30	MLV35-15	TE-1158	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C7	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C8	2		NPO-DI 2.0	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C9	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	2		NPO-DI 2.0	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C11	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C12	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C13	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	KOWA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4		B16-214				Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	47K				R12	33K			
R3	6800Ω				R13	5600Ω			
R4	3300Ω				R14	1500Ω			
R5	100K				R15	8200Ω			
R6	5600Ω				R16	330Ω			
R7	5600Ω				R17	Temp. Comp.			
R8	47K				R18	20Ω			
R9	4700Ω				R19	220Ω			
R10	1000Ω				R20	5600Ω			
R11	470Ω								

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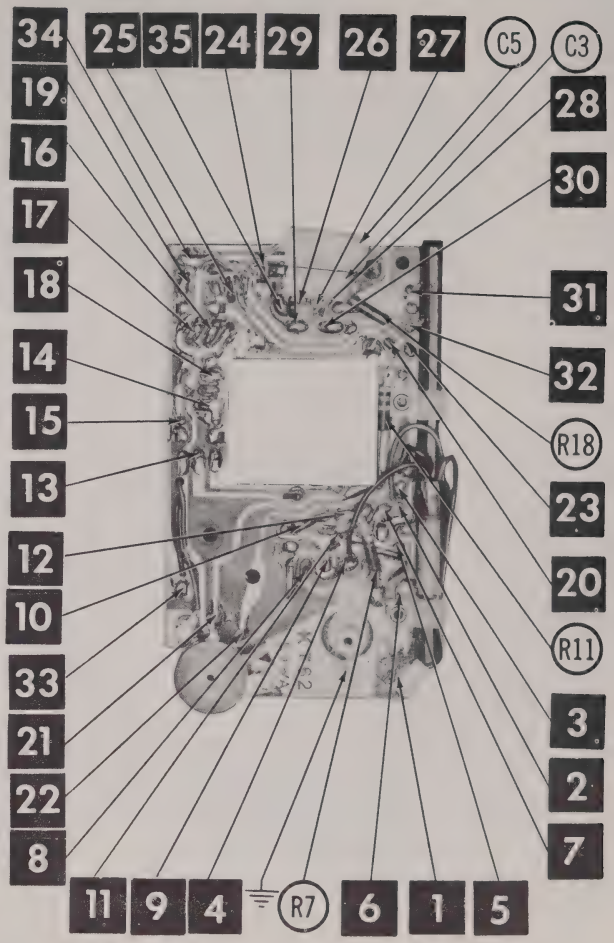


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		KOWA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick Osc.					
L2	1st IF					
L3	2nd IF					
L4	3rd IF					
L5						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	KOWA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.4	1	U-410					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	KOWA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	400Ω CT	6-8Ω	U-411		TA-21 ①			① Use 8Ω Secondary.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	KOWA PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω		22A06Z8	

BATTERIES

ITEM No.	VOLTAGE	KOWA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		KOWA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	SD-46			1N60	1N60	Detector (Pigtail)

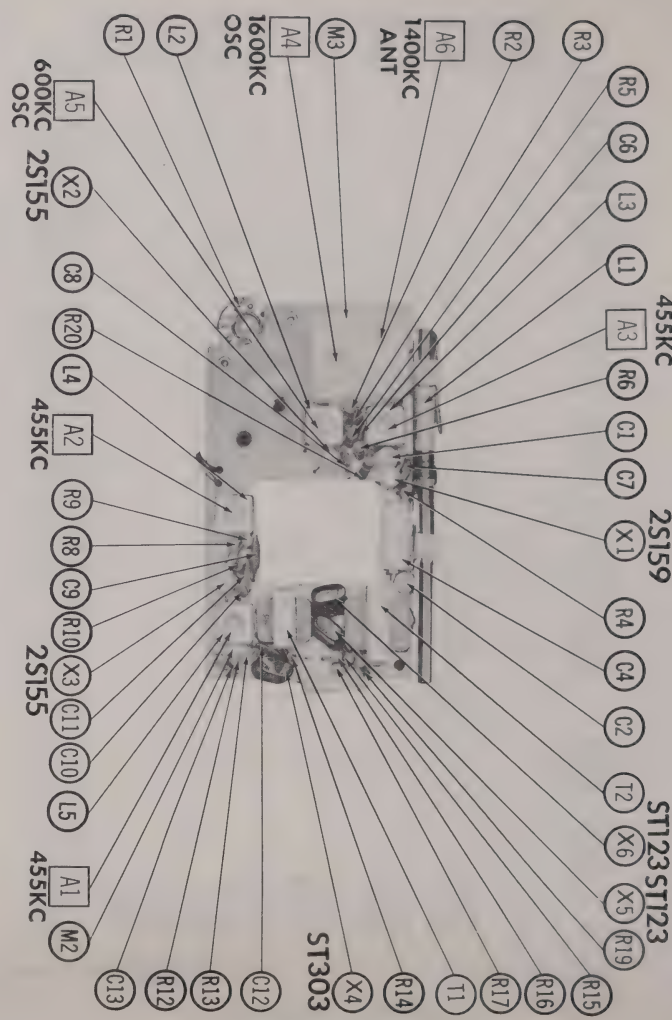
MISCELLANEOUS

ITEM No.	PART NAME	KOWA PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder

RAULAND
MODEL HF1021

RAULAND
MODEL HF1021

RAULAND
MODEL HF1021

TRADE NAME	Rauland Model HF 1021
MANUFACTURER	Rauland-Borg Corp. , 3535 W. Addison Street, Chicago 18, Illinois
TYPE SET	AC Operated 9 Tube Stereo Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 72 Watts, .67 Amp. @ 117 Volts AC

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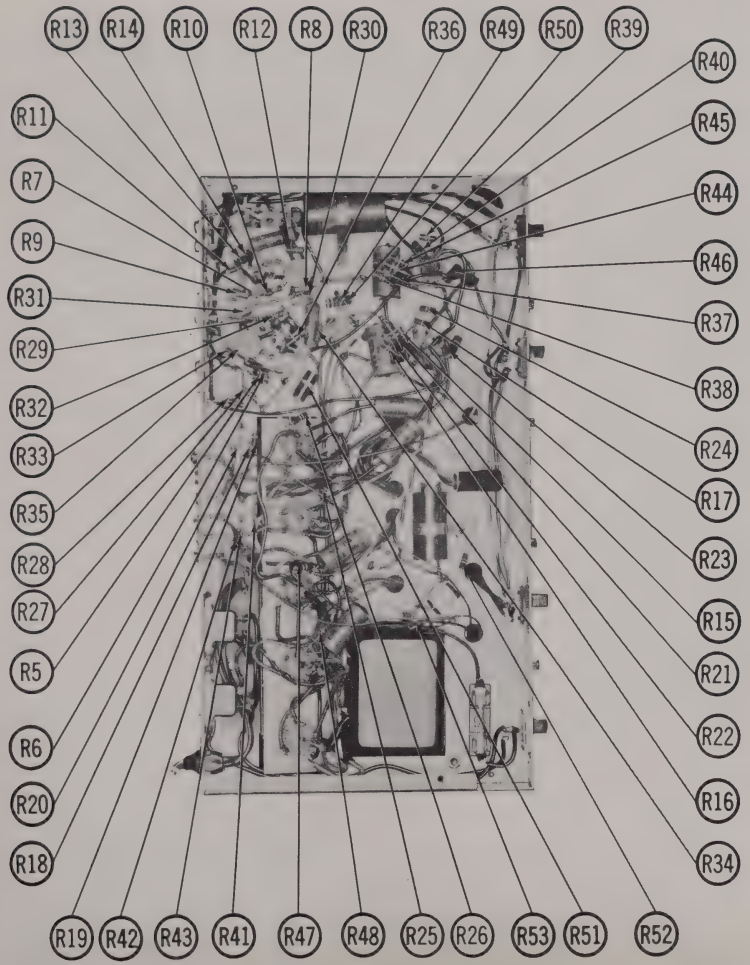
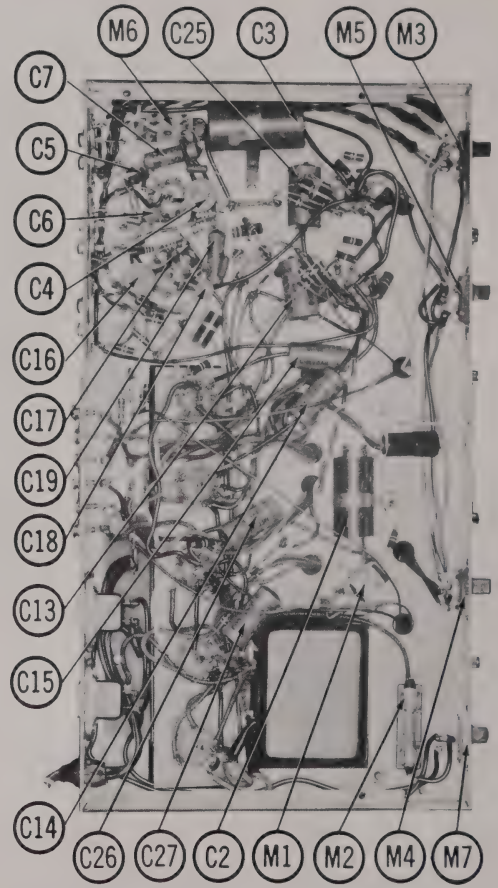
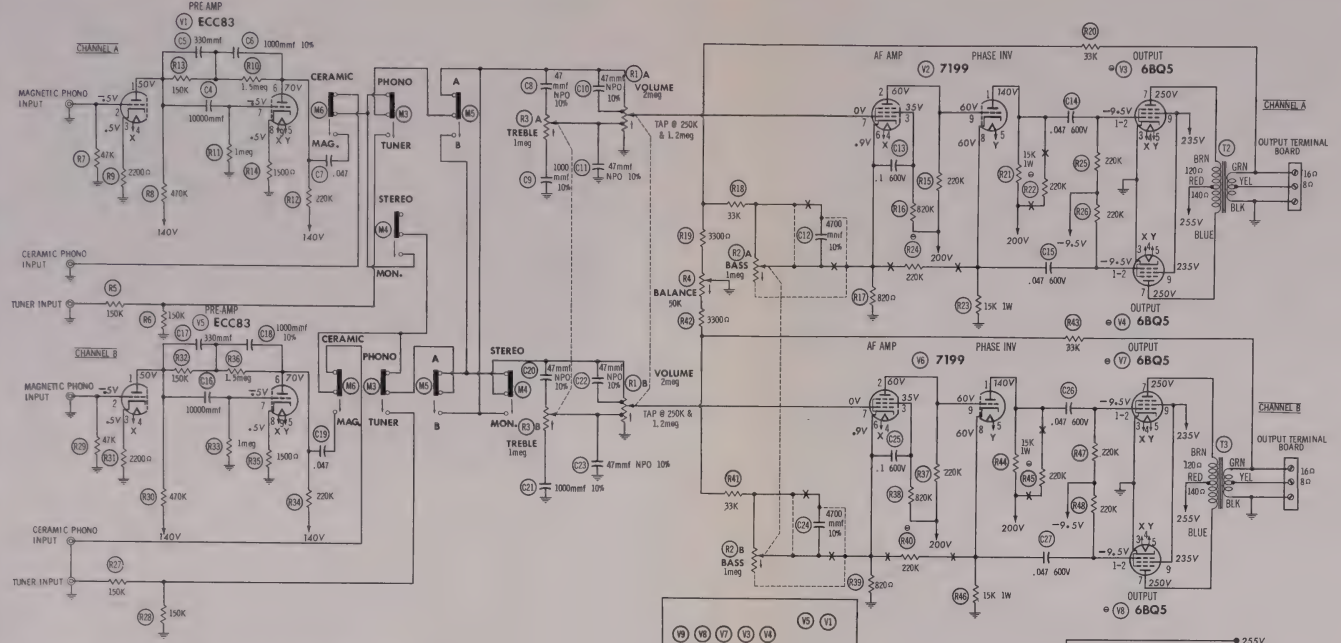


CHASSIS BOTTOM VIEW-RESISTOR IDENT.



CHASSIS BOTTOM VIEW
CAPACITOR & MISC. IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†450K	47K	Z200Ω	10K	10K	†270K	1meg	1500Ω	10K
V2	7199	†20K	†225K	†825K	10K	10K	820Ω	0Ω	15K	†225K
V3	6BQ5	NC	Z30K	0Ω	10K	10K	NC	†120K	NC	†1000Ω
V4	6BQ5	NC	Z30K	0Ω	10K	10K	NC	†140Ω	NC	†1000Ω
V5	ECC83 12AX7	†450K	47K	Z200Ω	10K	10K	†270K	1meg	1500Ω	10K
V6	7199	†20K	†225K	†825K	10K	10K	820Ω	0Ω	15K	†225K
V7	6BQ5	NC	Z30K	0Ω	10K	10K	NC	†120Ω	NC	†1000Ω
V8	6BQ5	NC	Z30K	0Ω	10K	10K	NC	†140Ω	NC	†1000Ω
V9	EZ81 6CA4	43Ω	NC	¶	10K	10K	NC	52Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V9. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

❸ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RAULAND MODEL HF1021

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Channel A Preamp.	ECC83/12AX7
V2	Channel A AF Amp. - Phase Inverter	7199
V3	Channel A Output	6BQ5 (EL84) *
V4	Channel A Output	6BQ5 (EL84) *
V5	Channel B Preamp.	ECC83/12AX7
V6	Channel B AF Amp. - Phase Inverter	7199
V7	Channel B Output	6BQ5 (EL84) *
V8	Channel B Output	6BQ5 (EL84) *
V9	Rectifier	EZ81/6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA RAULAND PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	300	CE-117A	AFH4-02	B0260 BR3025	FP327.89	TMT-3337	TVL-2630 TVA-1611	
B	■40	300							
C	▲30	250							
C2A	40	25		PRS2195	BBRD4415	TCD48	TDLD-7	TVA-2445	Note 1
B	40	25							Note 1
C3	16	350	CE-166K	PRS1640	BR1635	TC64	TD-16-350	TVA-1607	

Note 1. Some versions may combine C2A and C2B in one 80mfd unit(Part #CE-806H).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	330		DI-330	DD-331	L10T33	CCD-333	B-333	10TS-T33
C6	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C7	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C8	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C9	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C10	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C11	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C12	4700 10%		DI-4700		PM6D47	CCD-472	JL-247	10TS-D47
C13	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C14	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C15	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	330		DI-330	DD-331	L10T33	CCD-333	B-333	10TS-T33
C18	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C19	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C20	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C21	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C22	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C23	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C24	4700 10%		DI-4700		PM6D47	CCD-472	JL-247	10TS-D47
C25	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C26	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C27	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RAULAND PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg*	1/2	RP-405A	BT-175				Volume, Channel A
B	2meg*	1/2		STR-175				Volume, Channel B
R2A	1meg	1/2	RP-205G	B-70	AD47-1meg-Z		FA16A	Bass, Channel A
B	1meg	1/2		SR-70	Not Req.		RU16A	Bass, Channel B
C	Shaft	1/2		Not Req.	KSS-3		CS3500	
R3A	1meg	1/2	RP-205G	B-70	AD47-1meg-Z		FA16A	Treble, Channel A
B	1meg	1/2		SR-70	Not Req.		RU16A	Treble, Channel B
C	Shaft	1/2		Not Req.	KSS-3		CS3500	
R4A	50K	1/2	RP-503F	B-31	A47-50K-S	Q11-123	U35	Balance
B	Shaft	1/2		Not Req.	KSS-3	Not Req.	Not Req.	

* Tap ⓐ 250K and 1.2meg.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS	ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	150K				R20	33K			
R6	150K				R21	15K 1W			
R7	47K				R22	220K			Note 1
R8	470K				R23	15K 1W			
R9	2200Ω				R24	220K			Note 1
R10	1.5meg				R25	220K			
R11	1meg				R26	220K			
R12	220K				R27	150K			
R13	150K				R28	150K			
R14	1500Ω				R29	47K			
R15	220K				R30	470K			
R16	820K				R31	2200Ω			
R17	820Ω				R32	150K			
R18	33K				R33	1meg			
R19	3300Ω				R34	220K			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R35	1500Ω				R45	220K			Note 1
R36	1.5meg				R46	15K 1W			
R37	220K				R47	220K			
R38	820K				R48	220K			
R39	820Ω				R49	47K			
R40	220K			Note 1	R50	3300Ω 1W			
R41	33K				R51	1000Ω 2W			
R42	3300Ω				R52	10K			
R43	33K				R53	22Ω			
R44	15K 1W								

Note 1. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	RAULAND PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .67A	460VCT @ .085ADC Tap @ 12.5V @ .001ADC	6.3VCT @ 5.3A	LP-0288					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RAULAND PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7600Ω CT	16Ω CT	LO-0164					
T3	7600Ω CT	16Ω CT	LO-0164					

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	RAULAND PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.001A	JR-0027 *		Model 10 *		* Bias (Selenium Type)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RAULAND PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	2A 250V			312002 (3AG 2A 250V)	357001	AGC 2	4405

MISCELLANEOUS

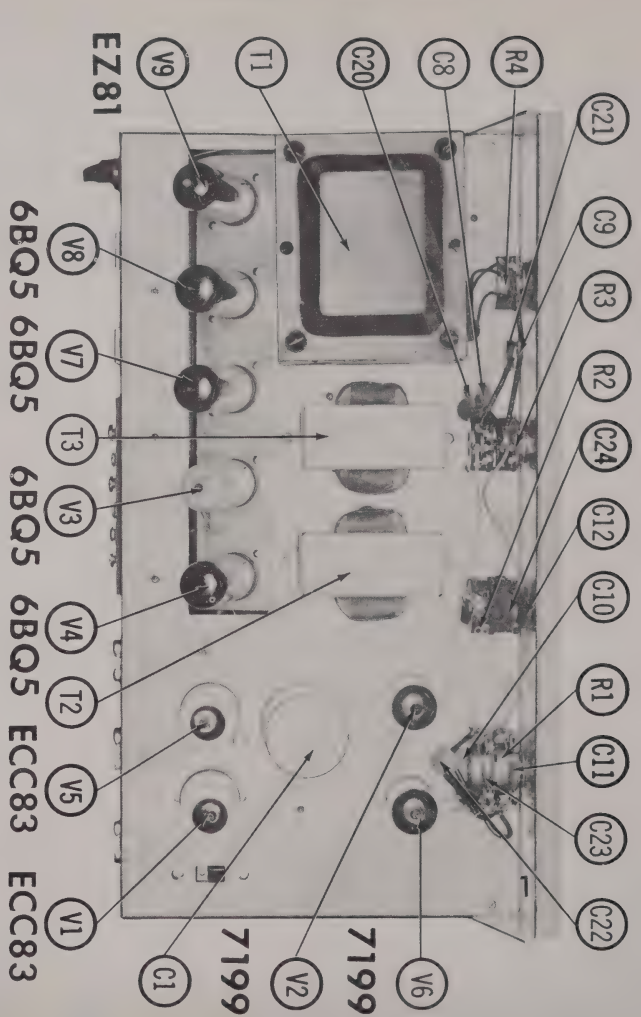
ITEM No.	PART NAME	RAULAND PART No.	NOTES
M3	Switch	X-0362	Selector, Phono-Tuner (DPDT Slide Type)
M4	Switch	X-0362	Mode, Stereo-Monaural (DPDT Slide Type)
M5	Switch	X-0362	Reverse, A-B (DPDT, Slide Type)
M6	Switch	X-0362	Ceramic-Magnetic (DPDT, Slide Type)
M7	Switch	X-0394	Power Off-On (SPDT, Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

SILVERTONE MODEL 1013 (Ch. 132.60301)

SILVERTONE MODEL
1013 (Ch. 132.60301)

SILVERTONE MODEL
1013 (Ch. 132.60301)

TRADE NAME	Silvertone Model 1013 (Ch. 132.60301)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	Battery Operated Transistorized AM Receiver		
POWER SUPPLY	9 Volts DC	RATING	4MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 – 1670KC		15MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A6.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A5.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	1670KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

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KG482

SET 529 FOLDER 11

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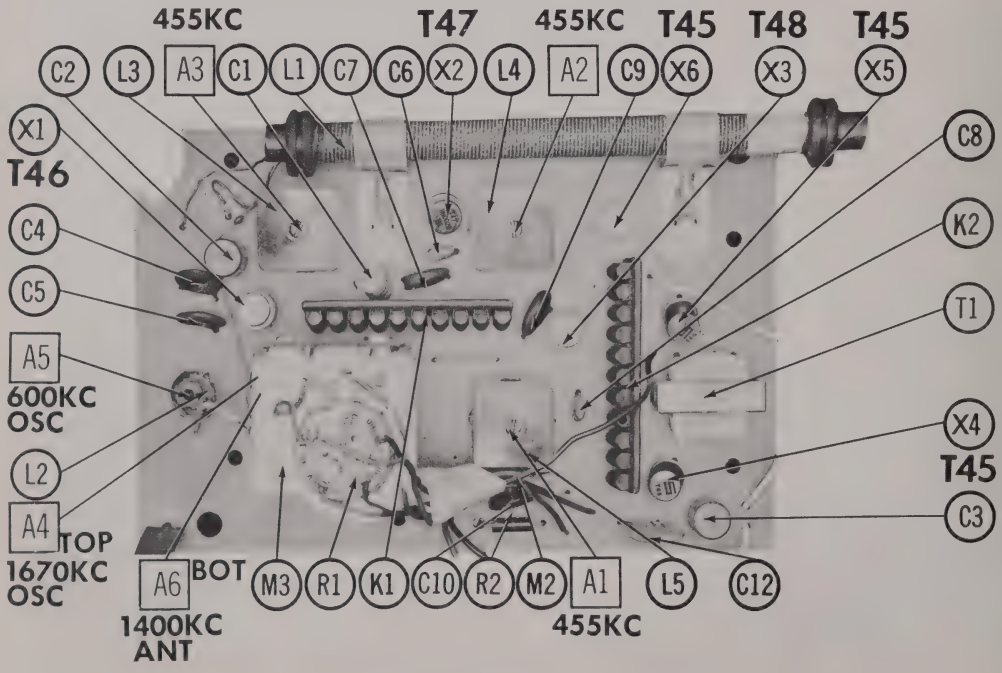
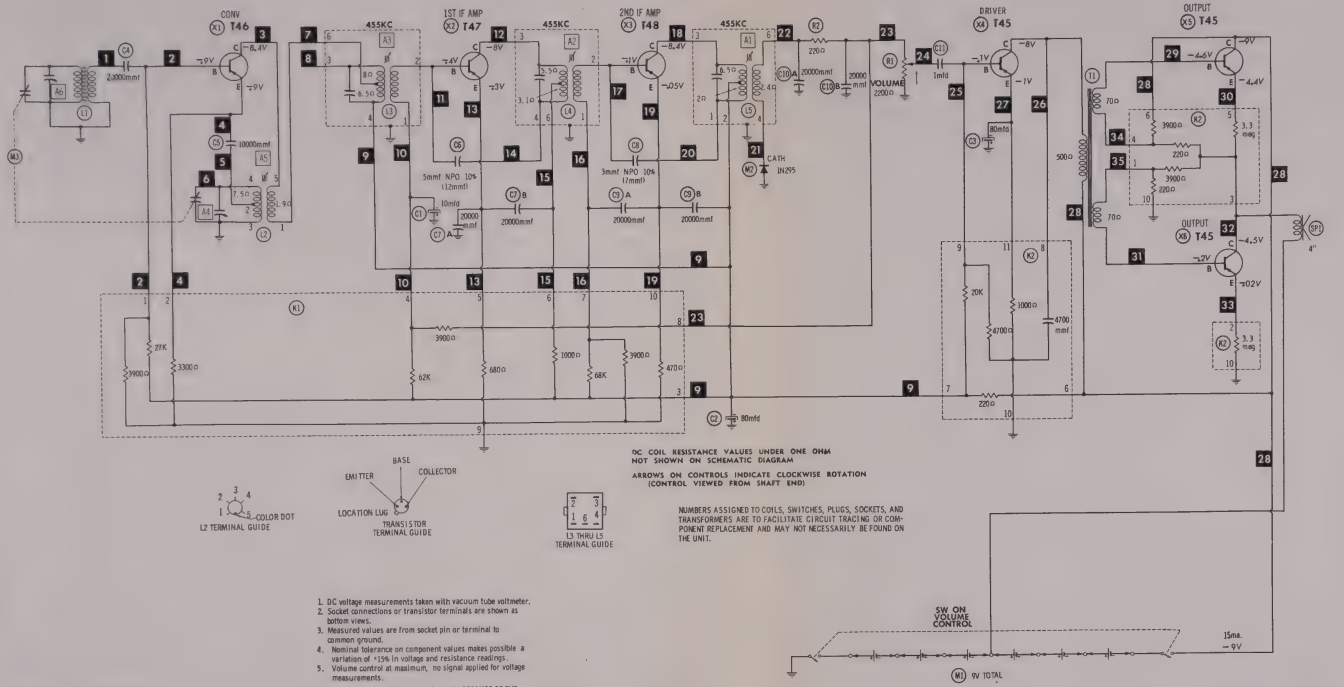


CHASSIS TOP VIEW



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum; no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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SILVERTONE MODEL 1013 (Ch. 132.60301)

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	T46	Converter	2N412	2N486		PNP
X2	T47	1st IF Amplifier	2N410	2N483		PNP
X3	T48	2nd IF Amplifier	2N410	2N483		PNP
X4	T45	Driver	2N408	2N362		PNP
X5	T45	Output	2N408	2N633		PNP
X6	T45	Output	2N408	2N633		PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	10	44396-4	PTT-10010	NLW10-15	TT12X10	MLV10-10	TE-1114	
C2	80	10	44279-8	BCD10080	ECPB416	PET1400	MLV100-10	VL-1180	
C3	80	10	44279-8	BCD10080	ECPB416	PET1400	MLV100-10	VL-1180	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	5 NPO 10%	(12) †	NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C7A	20000		BPD-2X02	DD-203	BYB6S2	CCD-203	B-120	5HK-2S20
B	20000			DD-203	BYB6S2	CCD-203	B-120	
C8	3 NPO 10%	(7) †	NPO-DI 3.0	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C9A	20000		BPD-2X01	DD-203	BYB6S2	CCD-203	B-120	5HK-2S20
B	20000			DD-203	BYB6S2	CCD-203	B-120	
C10A	20000		BPD-2X01	DD-203	BYB6S2	CCD-203	B-120	5HK-2S20
B	20000			DD-203	BYB6S2			
C11	1mfd 3V	#44684		UK-105				HY-120

Silvertone Part Number.
† Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	2200Ω	½	47500-10					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	220Ω								

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	RF-IF Network	470Ω, 680Ω, 1000Ω, 3300Ω, 3900Ω, 3900Ω, 3900Ω, 27K, 62K, 68K	47354-2	
K2	Driver-Output Network	4700mmf, 220Ω, 220Ω, 220Ω, 1000Ω, 3900Ω, 3900Ω, 4700Ω, 20K, 3.3meg, 3.3meg	47354-3	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	46861-7				
L2	Osc.	45783-19				
L3	1st IF	49001-1				
L4	2nd IF	49001-2				
L5	3rd IF	49001-3				

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.6	1 SEC. 2 1	45604-7					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	4"	PM	28-32Ω	45600-14	4A07Z32	

BATTERIES

ITEM No.	VOLTAGE	SILVERTONE	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
		PART No.	"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	6445 *		230 *		A100*		M-13R*	* 6 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N295			1N295	1N295	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Tuning Cap.	48754	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	48737	Tuning
Knob	48736	Volume
Cabinet	48730-67	Front, Brown
Cabinet	48734-48	Rear, Brown

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

PHOTOFACT® Folder with CIRCUITRACE®

SILVERTONE MODELS 1020, 1021, 1022 (Ch. 132.50601)

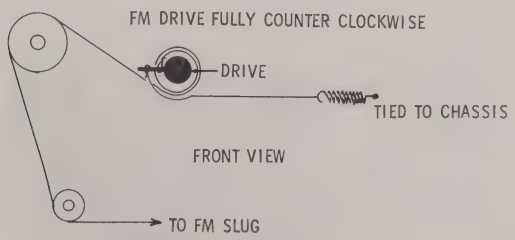
SILVERTONE MODELS 1020, 1021, 1022 (Ch. 132.50601)

MODEL 1022

SILVERTONE MODELS 1020, 1021, 1022 (Ch. 132.50601)

TRADE NAME	Silvertone Models 1020, 1021, 1022 (Ch. 132.50601)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	AC-DC Operated 6 Tube AM Receiver
POWER SUPPLY	110 – 120 Volts AC-DC RATING 29 Watts, .3 Amp. @ 117 Volts AC
TUNING RANGE	– FREQ. MOD. 88 – 108MC

TUNING DRIVE CORD STRINGING



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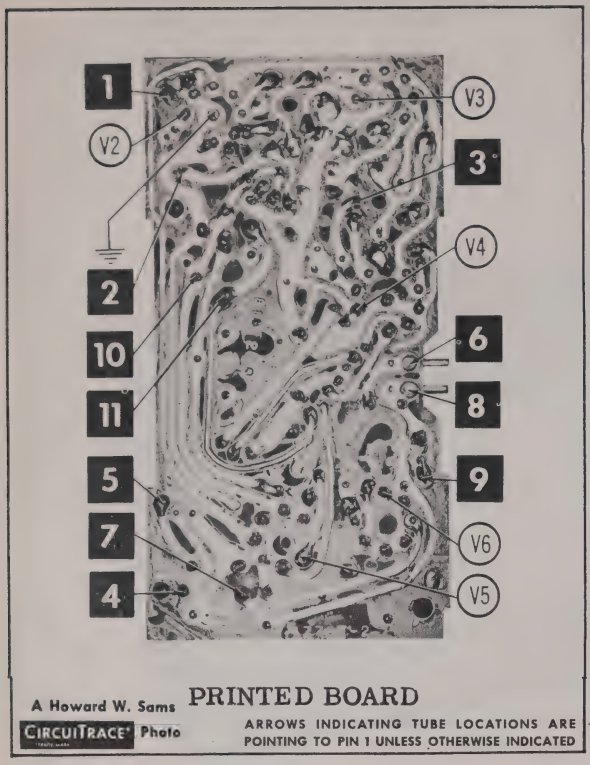
SET 529 FOLDER 12



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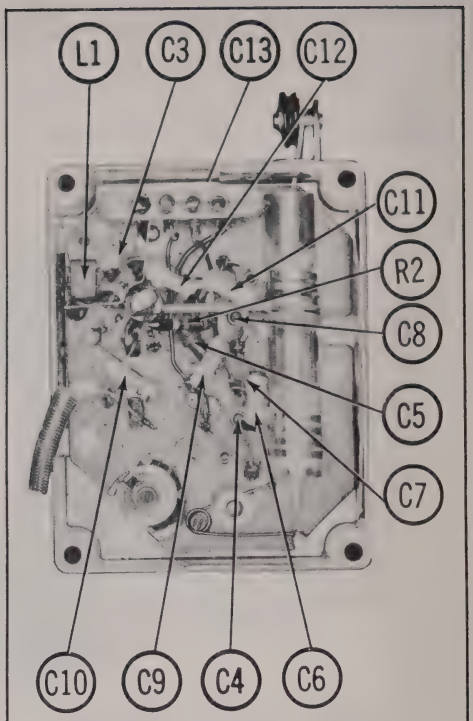
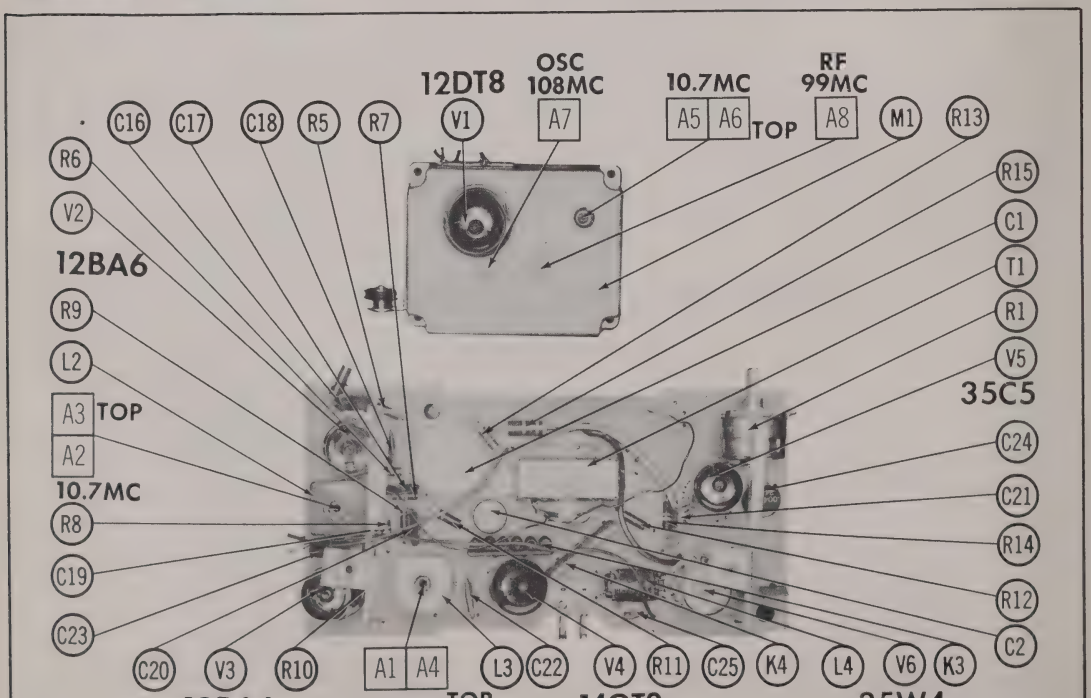
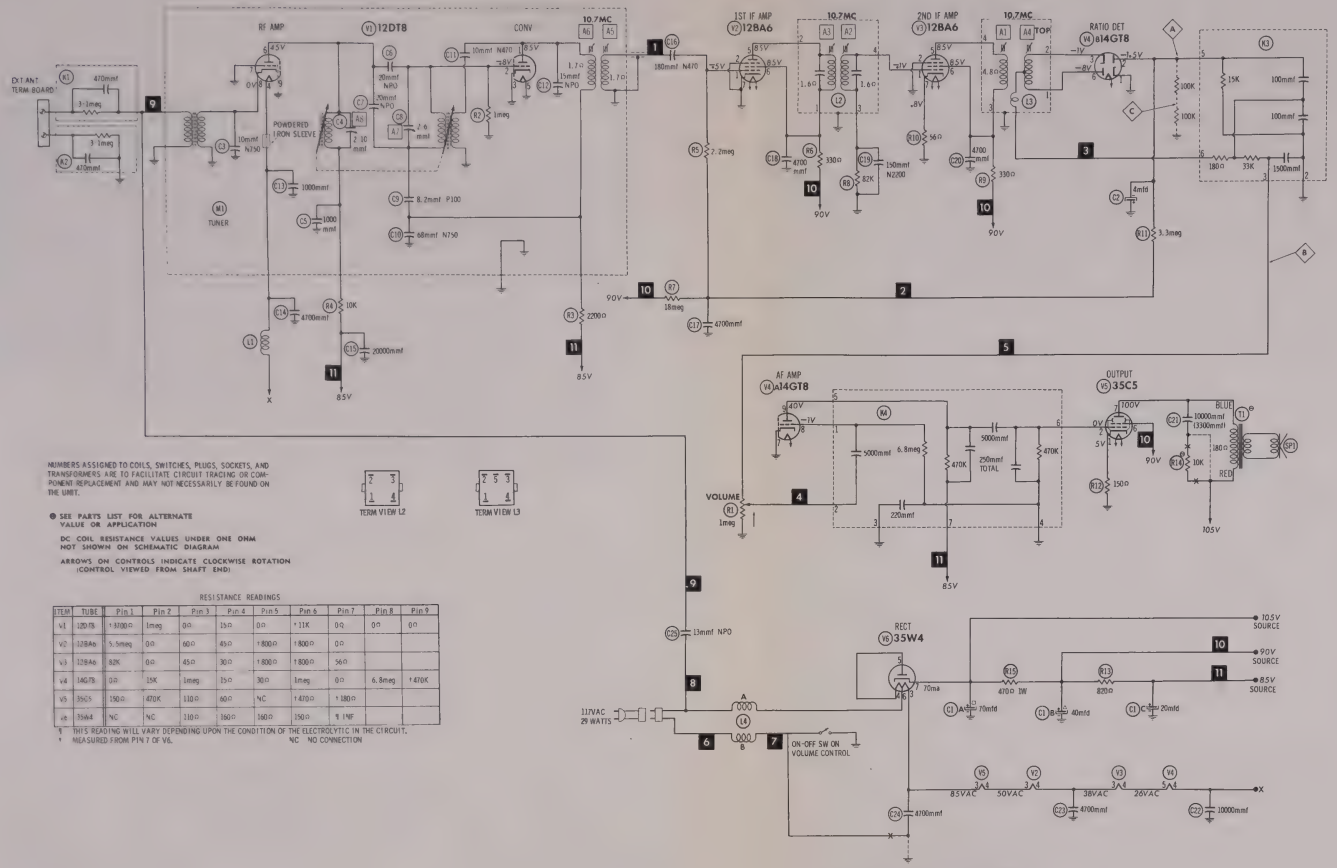
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



FM RF SUBCHASSIS



CHASSIS-TOP VIEW



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

TERM VIEW L2

TERM VIEW L3

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DT8	†3100Ω	1meg	0Ω	15Ω	0Ω	†11K	0Ω	0Ω	0Ω
V2	12BA6	5.5meg	0Ω	60Ω	45Ω	†800Ω	†800Ω	0Ω		
V3	12BA6	82K	0Ω	45Ω	30Ω	†800Ω	†800Ω	56Ω		
V4	14GT8	0Ω	15K	1meg	15Ω	30Ω	1meg	0Ω	6.8meg	†470K
V5	35C5	150Ω	470K	110Ω	60Ω	¹NC	†470Ω	†180Ω		
V6	35W4	²NC	²NC	110Ω	160Ω	160Ω	150Ω	¶ 1MF		

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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SILVERTONE MODELS 1020, 1021, 1022 (Ch. 132.50601)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools: A1 thru A4...GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #9440
A7, A8.....GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 1 (grid) of 1st IF Amp. Low side to chassis.	10.7MC (Unmod.)	Point of non-interference.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3	Adjust for maximum deflection.
2.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A4	Adjust for zero reading. A Positive and negative reading will be obtained on either side of the correct setting.
3.	Across antenna terminals.	"	"	DC probe to point Ⓐ. Common to chassis.	A5, A6	Adjust for maximum deflection.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .01mfd to pin 1 (grid) of 1st IF Amp. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point Ⓐ. Low side to chassis.	A1, A2, A3	Disconnect stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
2.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A4	Adjust to place marker at the center of crossover lines limilar to Fig. 2. SLIGHTLY retouch A1 for maximum amplitude and straightness of cross-over lines.
3.	Across antenna terminals.	"	"	Vert. amp. to point Ⓐ. Low side to chassis.	A5, A6	Disconnect C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.

RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	Across antenna terminals with 150Ω in each lead.	108MC (Unmod.)	108MC	DC probe to point Ⓐ. Common to chassis.	A7	Adjust for maximum deflection.
5.	"	99MC	99MC	"	Idler Tension Screw.	Adjust for proper tracking.
6.	"	"	"	"	A8	Adjust for maximum deflection.

FIG. 1

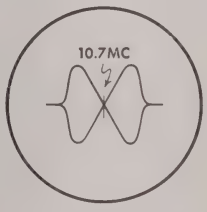

FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)	ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	RF Amp. -Conv.	12DT8	V4	Ratio Det. AF Amp.	14GT8
V2	1st IF Amplifier	12BA6	V5	Output	35C5
V3	2nd IF Amplifier	12BA6	V6	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■70	150	43711-13	PWH3-11-30	C0110 ‡	PFP311.63	TMT-3136 †	PCL-3441.2	
B	▲40	150							
C	20	150							
C2	4	50	45238-1	BCD50004	ECPB804	PET1935	MLV5-50	VL-1303	

‡ Use printed circuit adapters Part #55277 and 55278.
† Use printed circuit adapter kit TMA - .

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	10 N750		N750-SI 10	TCN-10	C10Q10U	CCTN-100	CN7-410	10TCU-Q10
C4	2-10							
C5	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	20 NPO		NPO-SI 20	TCZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C7	20 NPO		NPO-SI 20	TCZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C8	2-6					*		
C9	8.2 P100							
C10	68 N750		N750-SI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C11	10 N470					*		
C12	15 NPO		NPO-SI 15	TCZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C13	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C14	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C15	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C16	180 N470					*		
C17	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C18	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C19	150 N2200					*		
C20	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C21	10000	(3300) †	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C24	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C25	13 NPO			TCZ-12	C10Q13C	CCTO-120	CNO-412	10TCC-Q12

* Not normally in distributor's stock. Available thru distributor on order to manufacturer. † Alternate Value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1meg	½	45250-23					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	1meg			
R3	2200Ω			
R4	10K			
R5	2.2meg			
R6	330Ω			
R7	18meg			
R8	82K			
R9	330Ω			
R10	56Ω			
R11	3.3meg			
R12	150Ω			
R13	820Ω			
R14	10K			Note 1
R15	470Ω 1W			

Note 1. Not used in some versions.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	FM Antenna Filter	470mmf, .3-1meg	47796-2	Centralab RC-471; Sprague AC1-1
K2	FM Antenna Filter	470mmf, .3-1meg	47796-2	Centralab RC-471; Sprague AC1-1
K3	Ratio Detector Network	(2) 100mmf, 1500mmf, 180Ω, 15K, 33K	48922	
K4	Audio Coupling	250mmf, 220mmf, (2) 5000mmf, (2) 470K, 6.8meg	43743-2	Aerovox PA-512-3; Centralab PC-158; Sprague DT-5

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Fil. Choke(1.2uh)	42761-1	BC-562	4602	RTC-8516	T856	
L2	2nd IF	46971-3	FM-256	1463-PC	RTC-9046	T654	
L3	Ratio Detector	45240	FM-257	1465-PC	RTC-9050	T659	
L4A	Line Choke (3.3uh)	24308-2	BC-564	4608	RTC-8518	T858	
B	Line Choke (3.3uh)		BC-564	4608	RTC-8518	T858	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3200Ω	3-4Ω	42700-5 ①	A-3025	A-3332	24S53	S-16X	① Alternate Part #46700-6.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	46834-2	4A05 *	* Cut Basket to Fit.

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Tuner	46134	FM Complete

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	48642	
Knob	48452	Tuning
Knob	46844-1	Volume
Cabinet Front	48449-179	Charcoal Gray, Model 1020
Cabinet Back	48679-135	Light Gray, Model 1020
Cabinet Front	48449-96	Mint Green, Model 1021
Cabinet Back	48679-67	Ivory, Model 1021
Cabinet Front	48449-48	Brown, Model 1022
Cabinet Back	48679-48	Brown, Model 1022

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

PHOTOFACT® Folder with CIRCUITRACE®

SONY MODEL TR-711

SONY MODEL TR-711

SONY MODEL TR-711

TRADE NAME	Sony Model TR-711
IMPORTER	Sony Corp. of America, 514 Broadway, New York 12, N. Y.
TYPE SET	Battery Operated Transistorized BC-SW Receiver
POWER SUPPLY	6 Volts DC
RATING	14MA @ 6 Volts DC (No Signal, Min. Volume)
	25MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	535 — 1605KC
SHORT WAVE	3.9 — 12MC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A7, A8, All... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A5, A9..... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	(BC) Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5, A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.
5.	"	12MC	(SW) 12MC	"	A8	Adjust for maximum output.
6.	"	4MC	4MC	"	A9, A10	"
7.	"	10MC	10MC Signal.	"	All	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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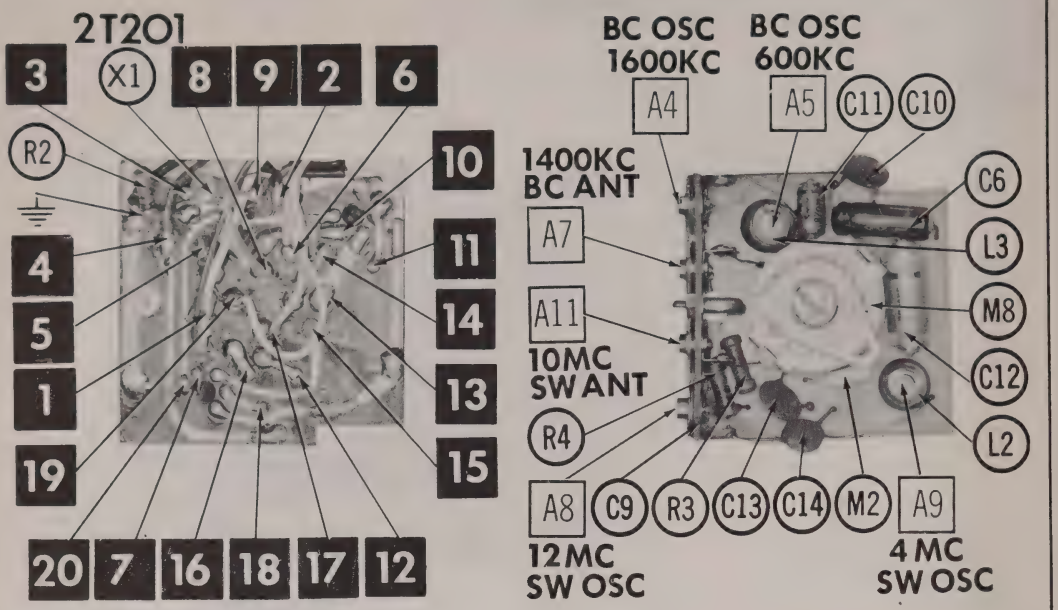
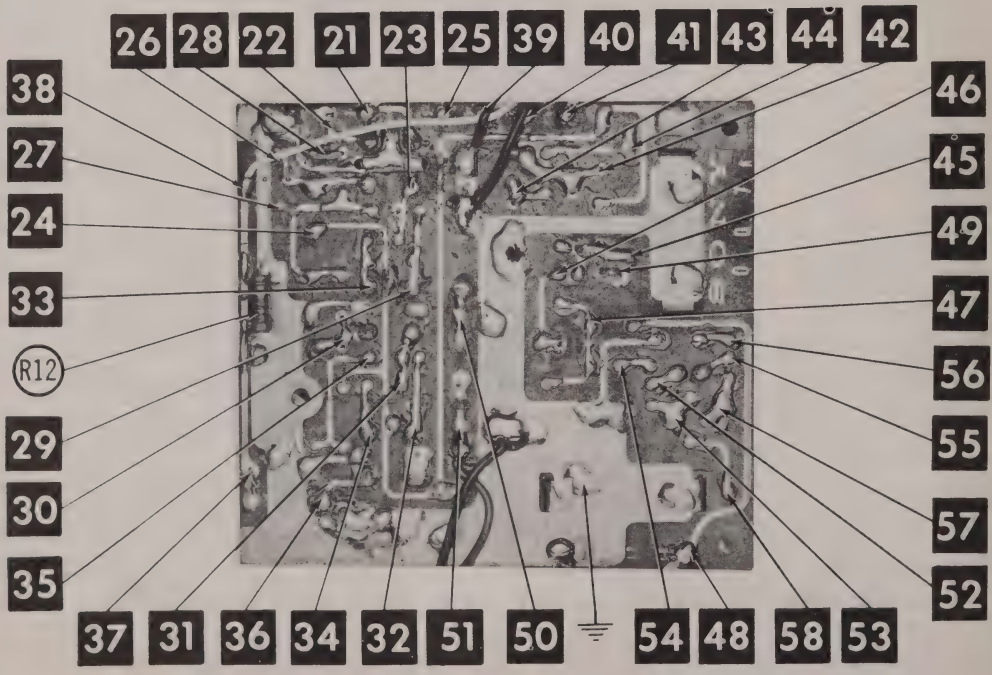
KG461

SET 529 FOLDER 13



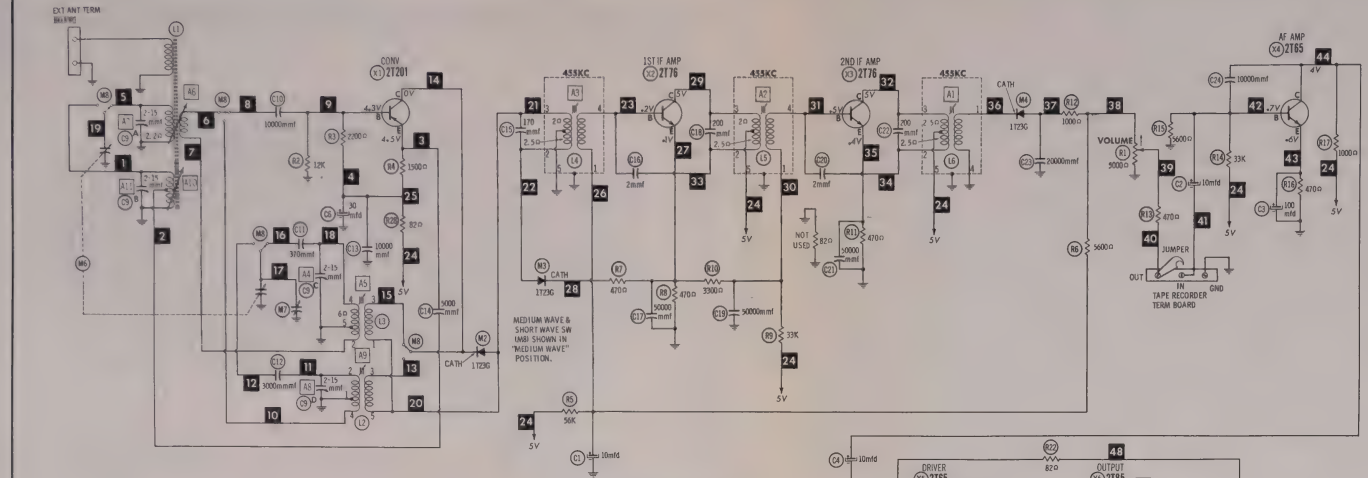
A Howard W. Sams CIRCUITRACE® Photo

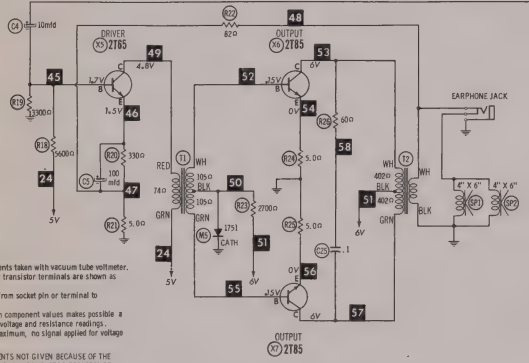
RF CHASSIS



A Howard W. Sams CIRCUITRACE® Photo

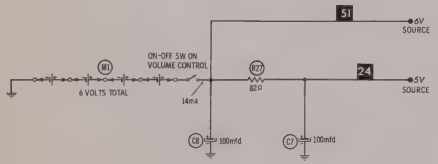
IF AUDIO CHASSIS

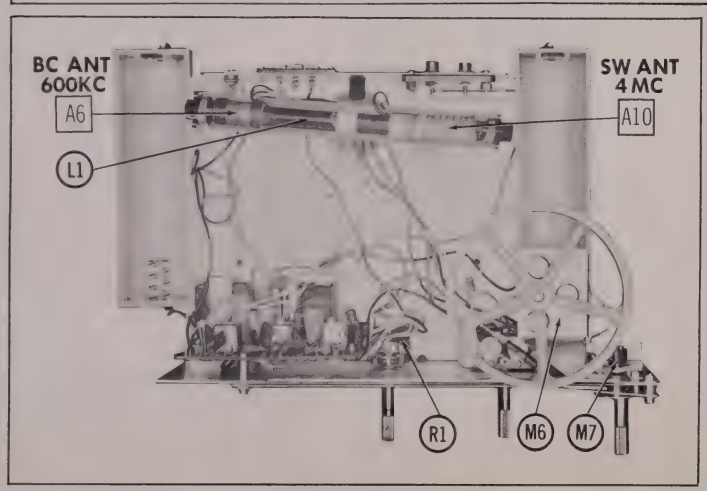




1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.





SONY MODEL TR-711

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2T201	Converter	2N412			PNP
X2	2T76	1st IF Amplifier				NPN
X3	2T76	2nd IF Amplifier				NPN
X4	2T65	AF Amplifier	2N649		2N214	NPN
X5	2T65	Driver	2N649		2N214	NPN
X6	2T85	Output	2N649			NPN
X7	2T85	Output	2N649			NPN

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SONY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	10	3		PTT-3010	NLW10-6	TT3X10	MLV10-3	TE-1053	
C2	10	3		PTT-3010	NLW10-6	TT3X10	MLV10-3	TE-1053	
C3	100	3		PTT-3100	NLW100-3	TT6X100	MLV100-3	TE-1059.5	
C4	10	3		PTT-3010	NLW10-6	TT3X10	MLV10-3	TE-1053	
C5	100	3		PTT-3100	NLW100-3	TT6X100	MLV100-3	TE-1059.5	
C6	30	6		PTT-6030	NLW30-6	TT6X30	MLV30-6	TE-1092	
C7	100	6		PTT-6100	NLW100-12	TT6X100	MLV100-6	TE-1102	
C8	100	6		PTT-6100	NLW100-12	TT6X100	MLV100-6	TE-1102	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C9A	2-15							
B	2-15							
C	2-15							
D	2-15							
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	370		SI 390	D6-391	L10T39	CCD-391	B-339	10TS-T39
C12	3000		SI 3000	D6-302	BYA10D3	CCD-302	B-230	10TS-D30
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C15	170		SI 180	D6-181	L10T18	CCD-181	B-318	10TS-T18
C16	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C17	50000		BPD-05	DD-503	H-0585		GP150	5HK-S50
C18	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C19	50000		BPD-05	DD-503	H-0585		GP150	5HK-S50
C20	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C21	50000		BPD-05	DD-503	H-0585		GP150	5HK-S50
C22	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C23	20000		BPD-02	DD-203	BYB6S	CCD-203	B-120	5HK-S20
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SONY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	5000Ω	1/2		AB-11				Volume
B	Shaft			AK-29				
C	Switch			KR-3				Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	12K				R16	470Ω			
R3	2200Ω				R17	1000Ω			
R4	1500Ω				R18	5600Ω			
R5	56K				R19	3300Ω			
R6	5600Ω				R20	330Ω			
R7	470Ω				R21	5.0Ω			
R8	470Ω				R22	82Ω			
R9	33K				R23	2700Ω			
R10	3300Ω				R24	5.0Ω			
R11	470Ω				R25	5.0Ω			
R12	1000Ω				R26	60Ω			
R13	470Ω				R27	82Ω			
R14	33K				R28	82Ω			
R15	5600Ω								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SONY PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1A	SW Loopstick	LA-002-2F				
B	Ext. Ant. Loop					
C	BC Loopstick					
L2	SW Osc.	LO-004-AQ				
L3	BC Osc.	LO-003-AQ				
L4	1st IF	LI-003-AM				
L5	2nd IF	LI-003-BM				
L6	3rd IF	LI-003-CM				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	.7	1	TI-006					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	700Ω CT	3-4Ω	TX-007					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SONY PART No.	QUAM PART No.	
SP1	4"x 6"	PM	6-8Ω	D-628SB	46A07Z8	
SP2	4"x 6"	PM	6-8Ω	D-628SB	46A07Z8	

BATTERIES

ITEM No.	VOLTAGE	SONY PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			230 *		A100 *		M-13R *	* 4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SONY PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1T23G			1N60	1N60	Osc. Coup. (Pigtail)
M3	1T23G			1N60	1N60	AGC (Pigtail)
M4	1T23G			1N60	1N60	Detector (Pigtail)
M5	1T51					Bias Regulator (Pigtail)

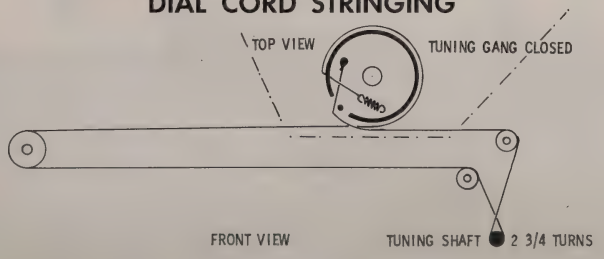
MISCELLANEOUS

ITEM No.	PART NAME	SONY PART No.	NOTES
M6	Tuning Cap.		2 Gang
M7	Trimmer Cap.		Oscillator (Fine Adjust)
M8	Switch		Band Selector (Rotary Type)

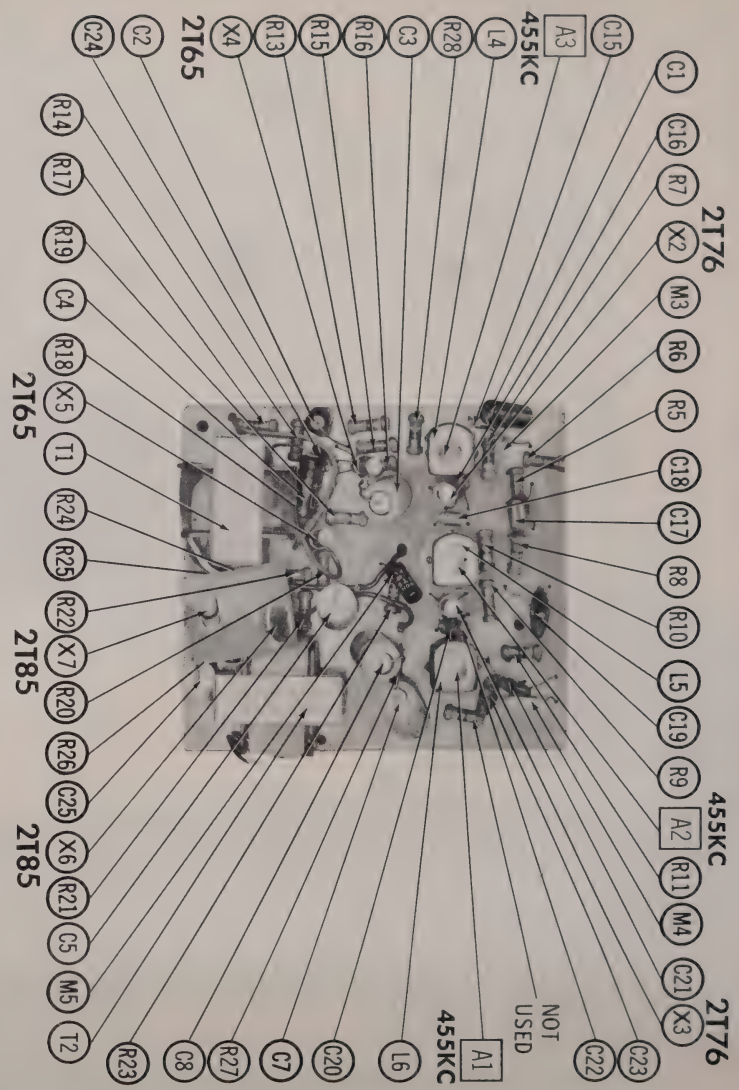
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

DIAL CORD STRINGING



CHASSIS—TOP VIEW



PHOTOFACT® Folder

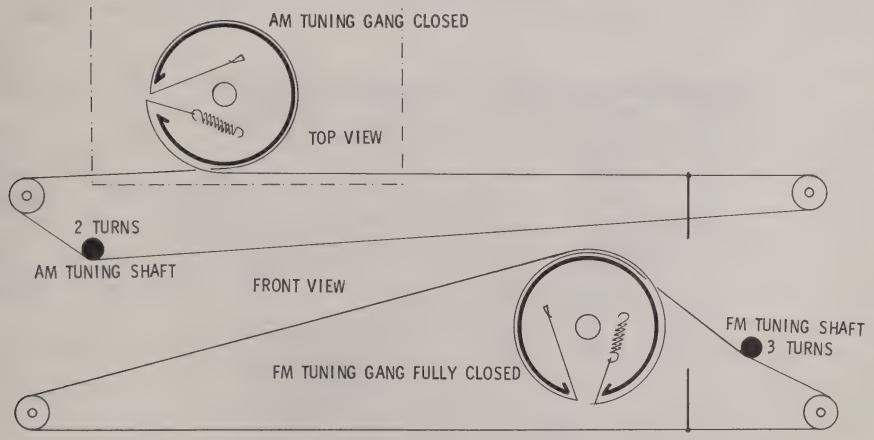
SYLVANIA MODEL 55C16
Series (Ch. 659-1, 660-1)

SYLVANIA MODEL 55C16
Series (Ch. 659-1, 660-1)

TRADE NAME	Sylvania Model 55C16 Series (Tuner Ch. 659-1, Amp. Ch. 660-1)		
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott St, Batavia, N. Y.		
TYPE SET	AC Operated 9 Tube FM-AM Tuner, 7 Tube Stereo Amplifier, and 4 Speed Automatic Record Changer		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	40 Watts, .38 Amp. @ 117 Volts AC (Tuner Only) 150 Watts, 1.4 Amp. @ 117 Volts AC (Amp. Only)
TUNING RANGE—BROADCAST	540 — 1650KC	FREQ. MOD.	88 — 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR GLASER-STEERS GS-77 (REVISED) — PHOTOFACT SET 482 FOLDER 11

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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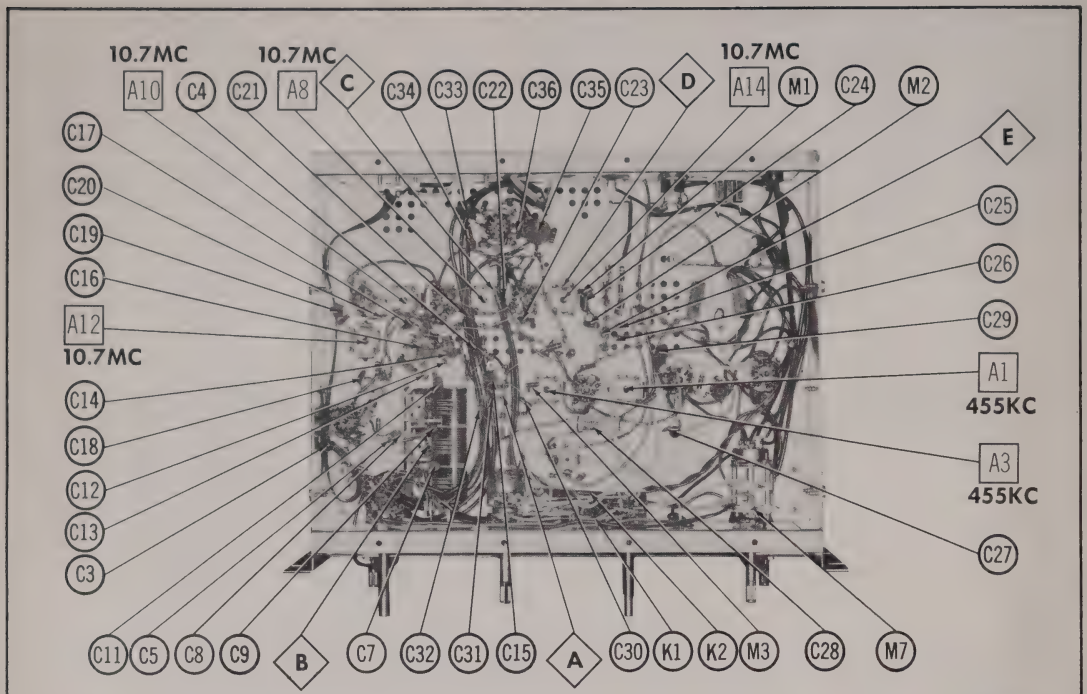
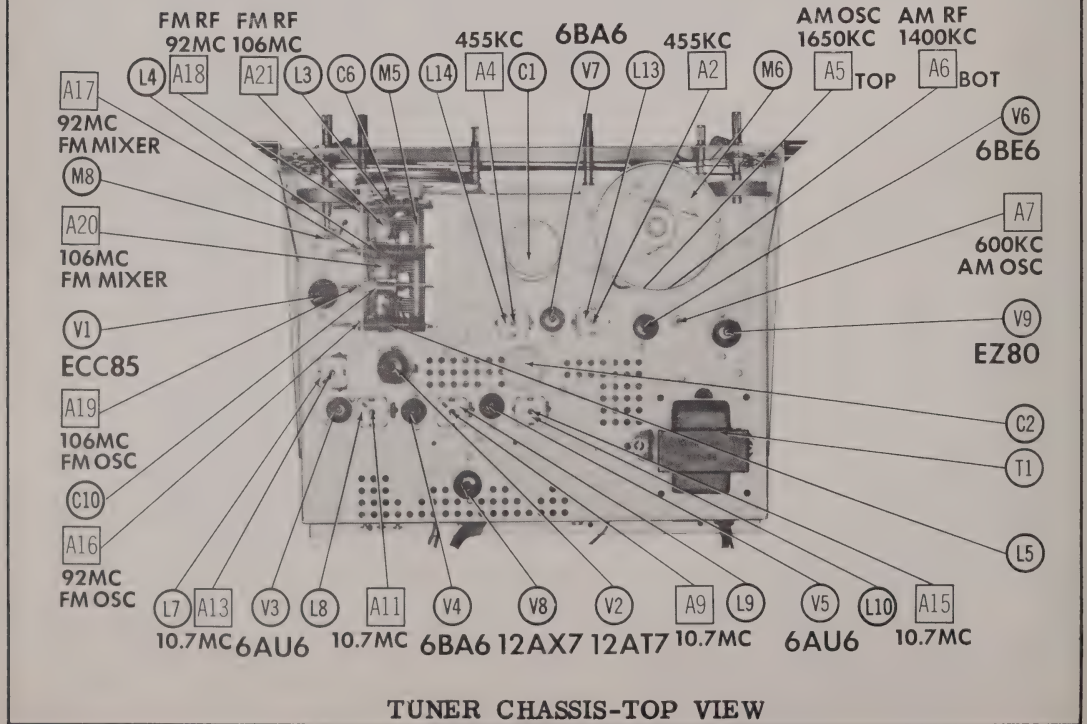
SET 529 FOLDER 14



TUNER CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



TUNER CHASSIS-TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4, A8 thru A15...	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A6, A20, A21.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A7.....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A16, A17, A18, A19.....	GENERAL CEMENT #8721, 8722 WALSCO #2519

AM ALIGNMENT – SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru 4.7mmf to AM antenna terminal. Low side to chassis.	455KC (400~ AM Mod.)	(AM) Tuning gang fully open.	AC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	1650KC	1650KC	"	A5	"
3.	"	1400KC	1400KC	"	A6	"
4.	"	600KC	600KC Signal.	"	A7	Adjust for maximum deflection. Repeat Steps 2, 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM–SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side to point (B). Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (C). Common to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (D). Common to chassis.	A14	"
7.	"	"	"	DC probe to point (E). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE–SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side to point (B). Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (C). Low side to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. amp. thru 1meg to point (D). Low side to chassis.	A14	"
7.	"	"	"	Vert. amp. to point (E). Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	High side thru 270Ω to FM antenna terminal. Low side to chassis.	92MC (Unmod.)	(FM) 92MC	DC probe to point (C). Common to chassis.	A16, A17, A18	Adjust for maximum deflection.
9.	"	106MC	106MC	"	A19, A20, A21	"

FIG. 1

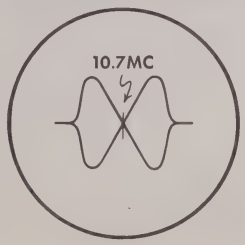
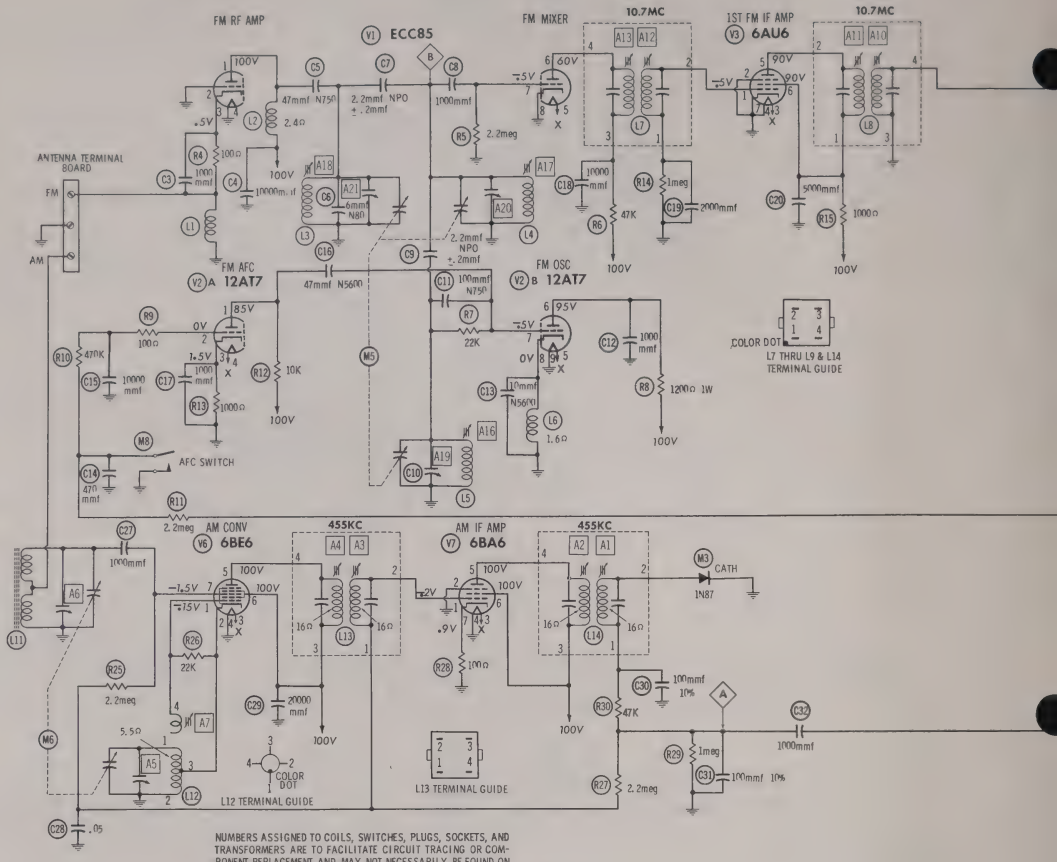


FIG. 2



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85 6AQ8	†800Ω	0Ω	100Ω	0Ω	.1Ω	†47K	2.2meg	0Ω	0Ω
V2	12AT7	†10K	2.9meg ▲470K	1000Ω	.1Ω	.1Ω	†2000Ω	22K	1.6Ω	0Ω
V3	6AU6	1meg	0Ω	.1Ω	0Ω	†1800Ω	†1800Ω	0Ω		
V4	6BA6	.1Ω	0Ω	.1Ω	0Ω	†1800Ω	†1800Ω	68Ω		
V5	6AU6	100K	0Ω	.1Ω	0Ω	†10K	†10K	0Ω		
V6	6BE6	22K	0Ω	.1Ω	0Ω	†800Ω	†800Ω	5meg		
V7	6BA6	3.2meg	0Ω	.1Ω	0Ω	†800Ω	†800Ω	100Ω		
V8	12AX7	†290K	0Ω	3300Ω	.1Ω	.1Ω	†290K	0Ω	3300Ω	0Ω
V9	EZ80 6V4	180Ω	NC	¶	0Ω	.1Ω	NC	190Ω	NC	NC

ALL MEASUREMENTS MADE IN "STEREO AM-FM" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V9.
▲ MEASURED WITH AFC SWITCH IN "OFF" POSITION. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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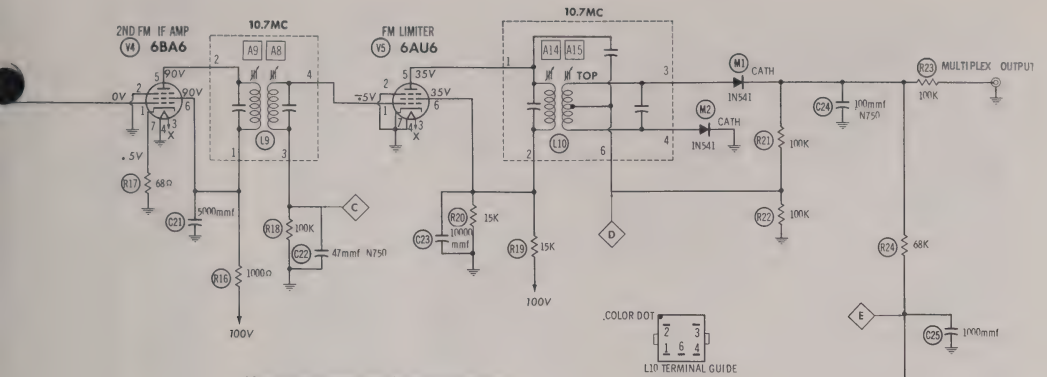
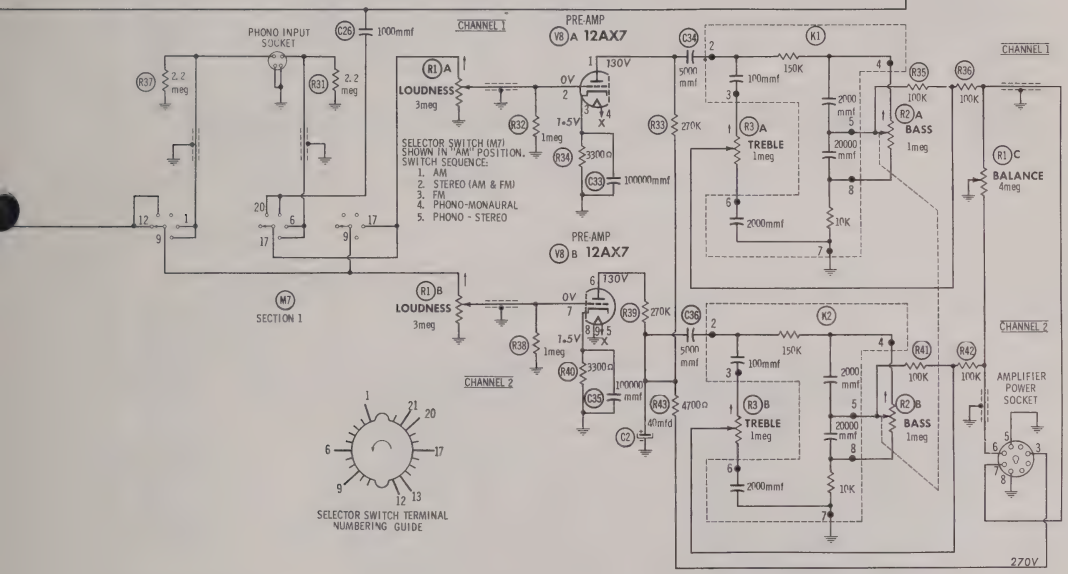
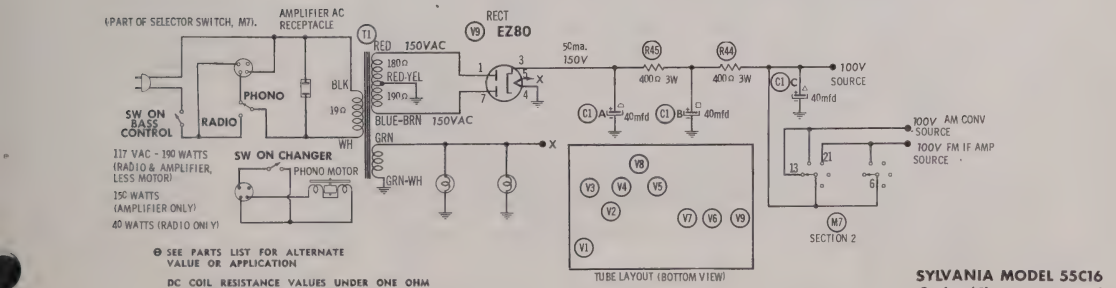


1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



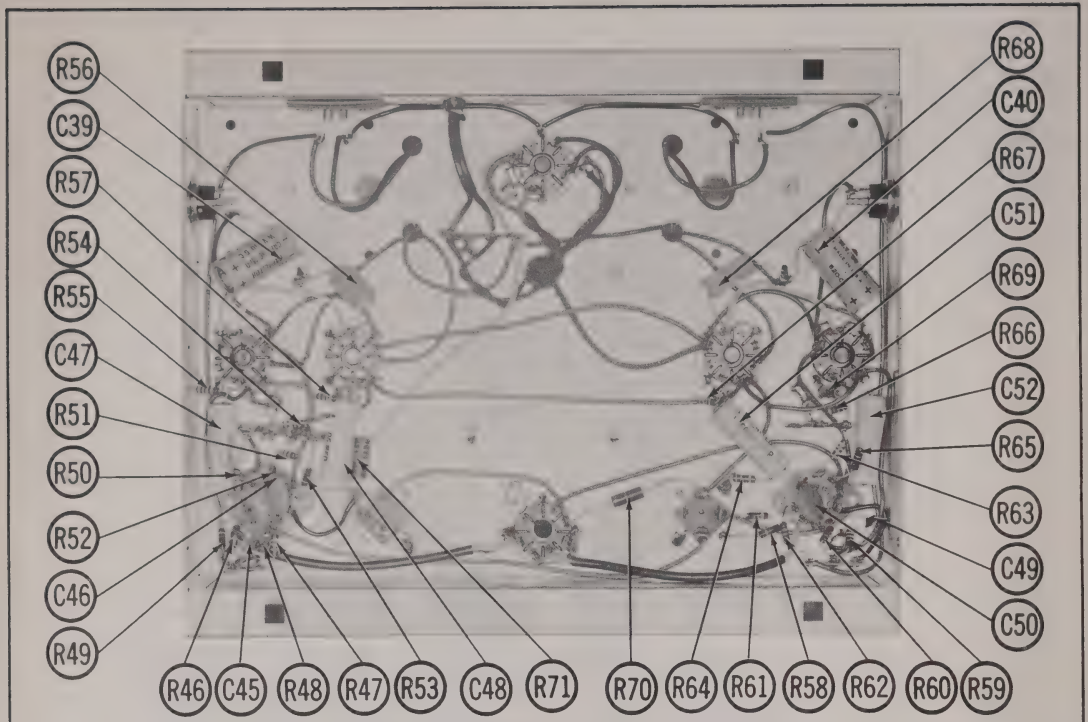


Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

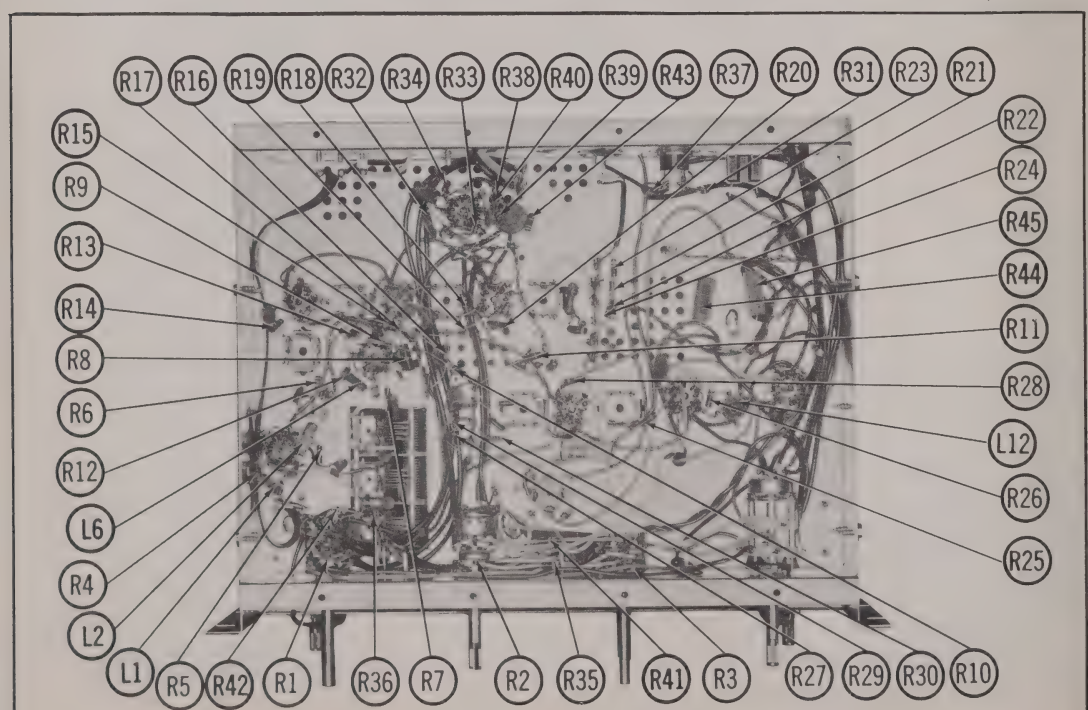
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

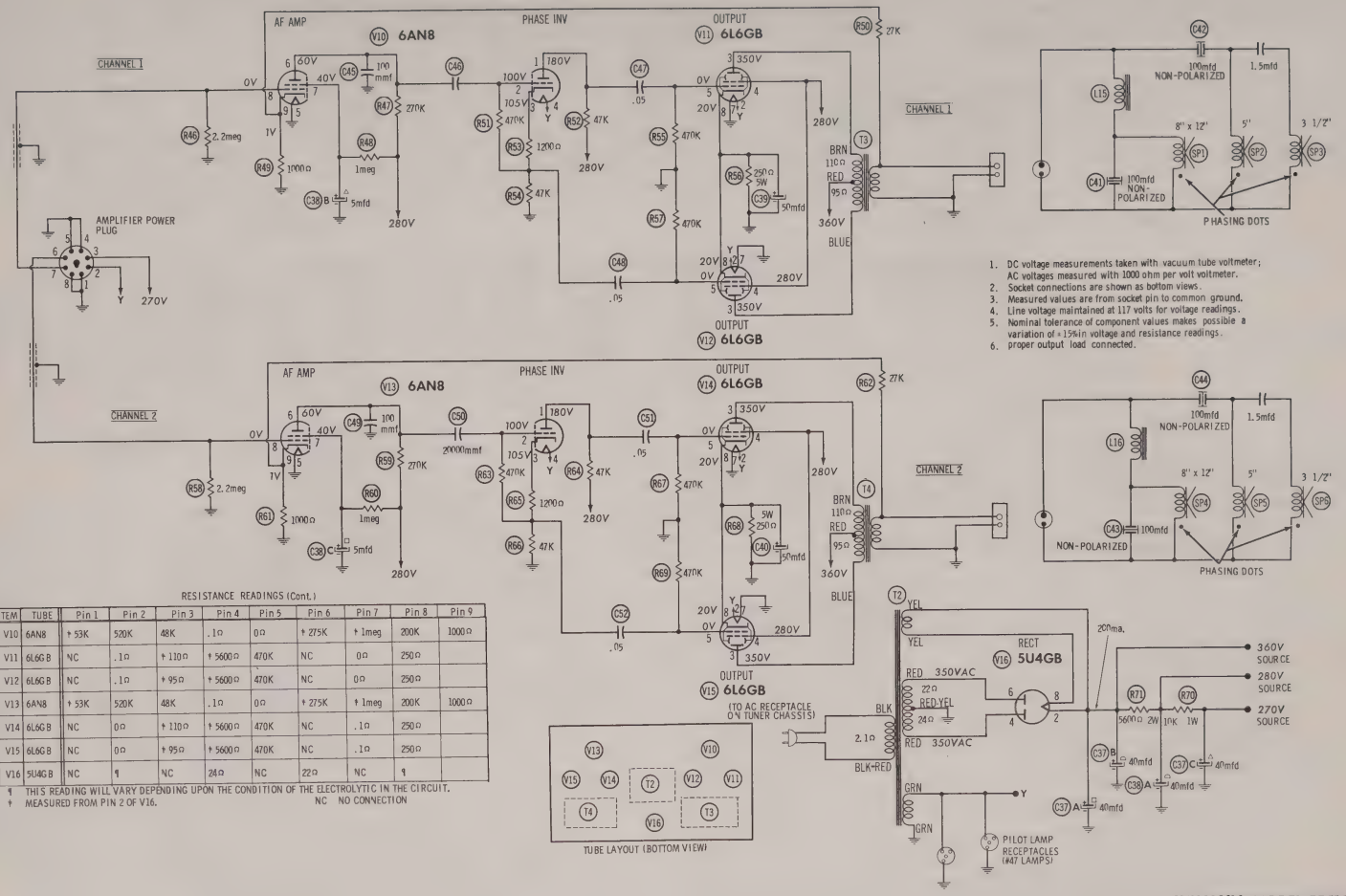
SYLVANIA MODEL 55C16
Series (Ch. 659-1, 660-1)



AMP CHASSIS-BOTTOM VIEW



TUNER CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. proper output load connected.

RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V10	6AN8	† 53K	520K	48K	.1Ω	0Ω	† 275K	† 1meg	200K	1000Ω
V11	6L6GB	NC	.1Ω	† 110Ω	† 5600Ω	470K	NC	0Ω	250Ω	
V12	6L6GB	NC	.1Ω	† 95Ω	† 5600Ω	470K	NC	0Ω	250Ω	
V13	6AN8	† 53K	520K	48K	.1Ω	0Ω	† 275K	† 1meg	200K	1000Ω
V14	6L6GB	NC	0Ω	† 110Ω	† 5600Ω	470K	NC	.1Ω	250Ω	
V15	6L6GB	NC	0Ω	† 95Ω	† 5600Ω	470K	NC	.1Ω	250Ω	
V16	5U4GB	NC	¶	NC	24Ω	NC	22Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 2 OF V16. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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SYLVANIA MODEL 55C16
Series (Ch. 659-1, 660-1)

AMP SCHEMATIC

TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Mixer	ECC85/6AQ8	V6	AM Converter	6BE6
V2	FM Osc. -FM AFC	12AT7	V7	AM IF Amplifier	6BA6
V3	1st FM IF Amplifier	6AU6	V8	Channel 1 Preamp. - Channel 2 Preamp.	12AX7
V4	2nd FM IF Amplifier	6BA6			
V5	FM Limiter	6AU6	V9	Rectifier	EZ80/6V4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	161-3046	AFH3-44	C0350	FP377.1	TMT-3748	TVL-3787	
B	■40	450							
C	▲40	450							
C2	40	250	161-1029	AFH1-29	A0290	FP146	TMS-1450	TVL-1519	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	47 N750		N750-D1 47	DTN-47	C10Q47U	CCTN-470 *	CN7-447	10TCU-Q47
C6	6 N80							
C7	2.2 NPO ± .2mmf		NPO-D1 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C8	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	2.2 NPO ± .2mmf		NPO-D1 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C10		#172-0061						
C11	100 N750		N750-S1 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C12	1000		BPD-001	DD-102	BYA10D1	CCD-102 *	B-210	5HK-D10
C13	10 N5600							
C14	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103 *	B-110	5HK-S10
C16	47 N5600							
C17	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C21	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	47 N750		N750-D1 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	100 N750		N750-S1 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C25	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C26	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C27	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	.05 200V		P288N-05	DD-502	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C29	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C30	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C31	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C32	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	100000			DDA-104	CUB2P1	iDP-2-104	BT-010	TH-P10
C34	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C35	100000			DDA-104	CUB2P1	iDP-2-104	BT-010	TH-P10
C36	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

Sylvania Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg		153-0241					Loudness, Channel 2
B	3meg							Loudness, Channel 1
C	4meg							Balance
R2A	1meg		153-0242	B-70	AD47-1meg-Z		FA16A	Bass, Channel 1
B	1meg			SR-70	Not Req.		RU16A	Bass, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
D	Switch			KR-1	SWE-12		U841	Power On-Off
R3A	1meg		153-0209	F1-52		† QJ-1520R	■ UE4194	Treble, Channel 1
B	1meg			R2-52				Treble, Channel 2

† "CONCENTRIKIT" equivalent: K-6 kit with base elements & shafts:
B13-137, P17-123 (Panel)
(Not available as a factory assembled unit). B13-137, R1-205 (Rear)
■ "STA-LOC" equivalent: FA16A, RU16A, OS1687, 1S2250.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	100Ω			
R5	2.2meg			
R6	47K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	22K			
R8	1200Ω 1W			
R9	100Ω			

TUNER PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R10	470K			
R11	2.2meg			
R12	10K			
R13	1000Ω			
R14	1meg			
R15	1000Ω			
R16	1000Ω			
R17	68Ω			
R18	100K			
R19	15K			
R20	15K			
R21	100K			
R22	100K			
R23	100K			
R24	68K			
R25	2.2meg			
R26	22K			
R27	2.2meg			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R28	100Ω			
R29	1meg			
R30	47K			
R31	2.2meg			
R32	1meg			
R33	270K			
R34	3300Ω			
R35	100K			
R36	100K			
R37	2.2meg			
R38	1meg			
R39	270K			
R40	3300Ω			
R41	100K			
R42	100K			
R43	4700Ω			
R44	400Ω 3W	PW5-400	5W-SQ-400	
R45	400Ω 3W	PW5-400	5W-SQ-400	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	FM Ant. (.27uh)	146-0021 ①		4584	RTC-8512	T957	① IRC Part # CLA
L2	RF Choke(3.3uh)	146-0019 ①	BC-564	9320-18	RTC-8518	T816	
L3	FM RF	113-0083					
L4	FM Mixer	113-0083					
L5	FM Osc.	113-0084					
L6	RF Choke (1uh)	146-0020 ①	BC-561	4602	RTC-8515	T855	
L7	1st FM IF	128-0019	FM-254	1463	RTC-8599	T633	
L8	2nd FM IF	121-0115	FM-254	1463	RTC-8599	T633	
L9	3rd FM IF	128-0020	FM-254	1463	RTC-8599	T633	
L10	Discriminator	128-0018	FM-253	1464	RTC-8665	T634	
L11	Loopstick	581-0027					
L12	AM Osc.	113-0085	BC-393	69-OSC	RTC-8646	T503	
L13	1st AM IF	121-0114	BC-352	12-C1	RTC-8632	T607	
L14	2nd AM IF	121-0114	BC-353	12-C2	RTC-8633	T608	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .38A	300VCT @ .055A DC	6.3V@ 3.3A	141-0088					

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA
K1	Tone Comp.	100mmf, (2) 2000mmf, 20000mmf, 10K, 150K	190-0060	
K2	Tone Comp.	100mmf, (2) 2000mmf, 20000mmf, 10K, 150K	190-0060	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SYLVANIA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M1	1N541	1N541		1N541	1N541	FM Detector (Pigtail)
M2	1N541	1N541		1N541	1N541	FM Detector (Pigtail)
M3	1N87	1N87G		1N87G	1N87G	AM Detector (Pigtail)

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	SYLVANIA PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M4					26VS	Not Req.			

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M5	Tuning Cap.	170-0052	FM, 3 Gang
M6	Tuning Cap.	170-0053	AM, 2 Gang (Ant. 14–357mmf, Osc. 5–80mmf)
M7	Switch	573-0026	Function Selector (Rotary Wafer Type)
M8	Switch	573-0027	AFC (On Tuning Shaft)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V10	Channel 1 AF Amp. - Channel 1 Phase Inv.	6AN8
V11	Channel 1 Output	6L6GB
V12	Channel 1 Output	6L6GB
V13	Channel 2 AF Amp. - Channel 2 Phase Inv.	6AN8
V14	Channel 2 Output	6L6GB
V15	Channel 2 Output	6L6GB
V16	Rectifier	5U4GB

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C37A	■40	450	161-3046	AFH3-44	C0350	FP238 TC78	TMT-3748	TVL-3787	
B	▲40	450							
C	▲40	450							
C38A	▲40	450	161-3047	AFH3-41	C0320	FP396.2	TMT-3736	TVLS-3782.8*	
B	▲5	450							
C	■5	450							
C39	50	50	161-1071	PRS1350	BR5015	TC39	TD-50-50	TVA-1308	
C40	50	50	161-1071	PRS1350	BR5015	TC39	TD-50-50	TVA-1308	
C41	100	25NP	161-1069	PRS7340	BR10015	TCN425		TVANS-1207.1*	
C42	100	25NP	161-1069	PRS7340	BR10015	TCN425		TVANS-1207.1*	
C43	100	25NP	161-1069	PRS7340	BR10015	TCN425		TVANS-1207.1*	
C44	100	25NP	161-1069	PRS7340	BR10015	TCN425		TVANS-1207.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C45	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C46	20000		BPD-01	DD-203	BYB6S2	CCD-203	B-120	5HK-D20
C47	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C48	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C49	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C50	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C51	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C52	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R46	2.2meg			
R47	270K			
R48	1meg			
R49	1000Ω			
R50	27K			
R51	470K			
R52	47K			
R53	1200Ω			
R54	47K			
R55	470K			
R56	250Ω 5W			
R57	470K			
R58	2.2meg			
R59	270K			
R60	1meg			
R61	1000Ω			
R62	27K			
R63	470K			
R64	47K			
R65	1200Ω			
R66	47K			
R67	470K			
R68	250Ω 5W	PW5-250	5W-SQ-250	
R69	470K			
R70	10K 2W			
R71	5600Ω 2W			

CROSSOVER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L15		.5Ω	.003HY	145-0039					
L16		.5Ω	.003HY	145-0039					

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	117V Ⓐ 1.4A	700VCT Ⓐ .200A DC	5V Ⓐ 3A	141-0089	P-3165 ①③		26R25U ② ③	R-20A ③ ④	
	SEC. 3	SEC. 4	SEC. 5						
	6.3V Ⓐ 5.1A								

① Tape 5V Ⓐ 2A and 6.3V Ⓐ .6A Windings.
② Tape 5V Ⓐ 3A and 6.3V Ⓐ .6A Windings.
③ Drill New Mounting Hole (s).
④ Tape (1) 6.3V Ⓐ 8A Winding and Center Tap on other 6.3V Winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	6300Ω CT	6-8Ω	143-0102	A-2905 ①	A-3870	24S14	S-57Z	① Drill New Mounting Hole.
T4	6300Ω CT	6-8Ω	143-0102	A-2905 ①	A-3870	24S14	S-57Z	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SYLVANIA PART No.	QUAM PART No.	NOTES
SP1	8"x 12"	PM	6-8Ω	539-8120		
SP2	5"	PM	14-16Ω	539-0514	5A15RZ16	
SP3	3½"	PM	6-8Ω	539-0355	3A15TZ8	
SP4	8"x 12"	PM	6-8Ω	539-8120		
SP5	5"	PM	14-16Ω	539-0514	5A15RZ16	
SP6	3½"	PM	6-8Ω	539-0355	3A15TZ8	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	721-0041	
Knob	740-0396	Tuning
Knob	740-0392	Loudness, Treble, Outer
Knob	740-0391	Balance, Treble, Inner
Knob	740-0390	Bass, Function

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

U.S.L. MODEL TR-800

U.S.L. MODEL TR-800

U.S.L. MODEL TR-800

TRADE NAME	U.S.L. Model TR-800
MANUFACTURER	United Scientific Laboratories Inc., 35-15 37th Ave., Long Island City 1, N. Y.
TYPE SET	AC-Battery Operated Crystal Controlled 6 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	110 – 120 Volts AC, 50-60 Cycles (or) 6 or 12 Volt Storage Battery
RATING	40 Watts, .38 Amp. @117 Volts AC
FREQ. RANGE	TRANSMITTER: Any 5 of Citizens Band Channels 1 thru 22 RECEIVER: All Citizens Band Channels 1 thru 22

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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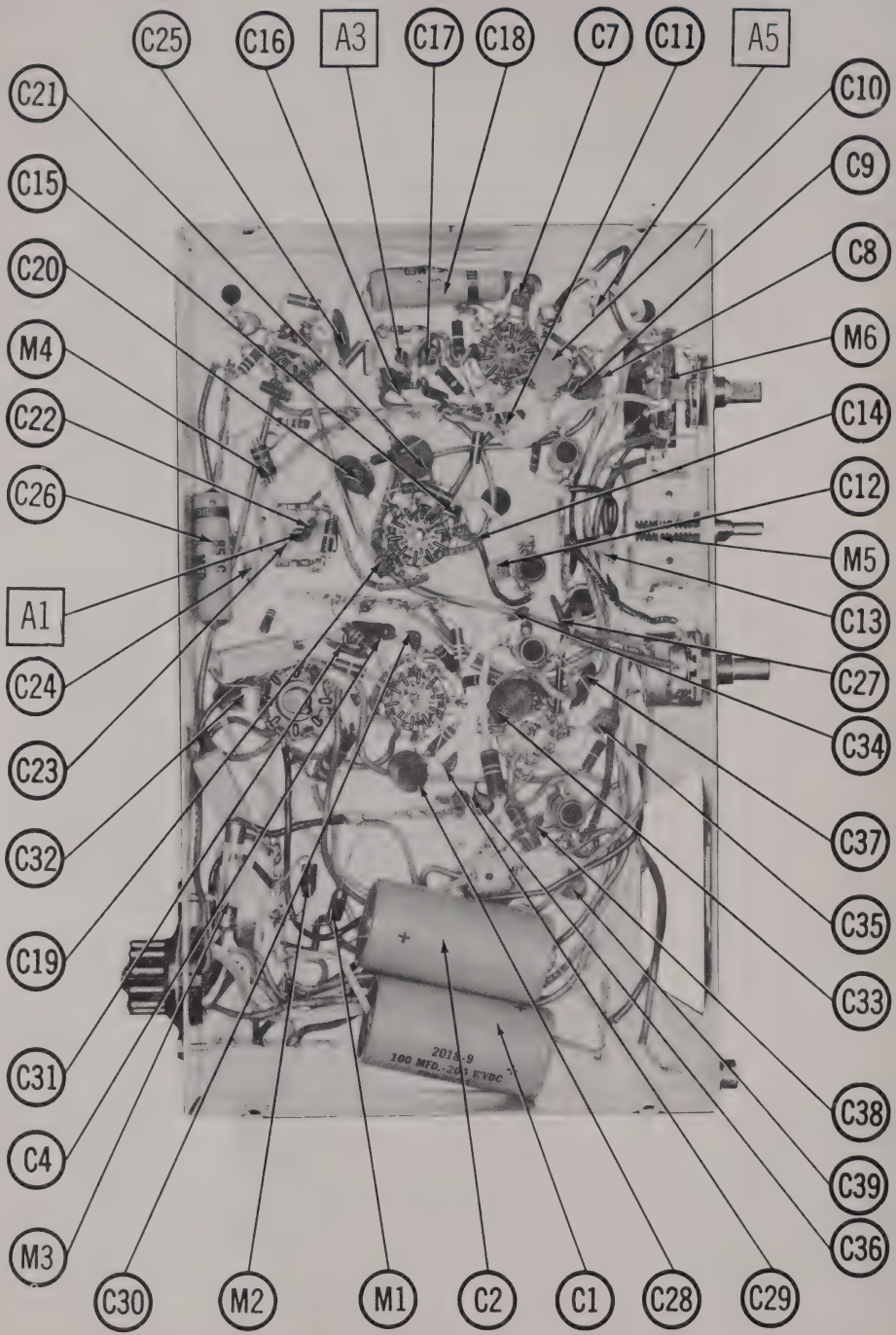
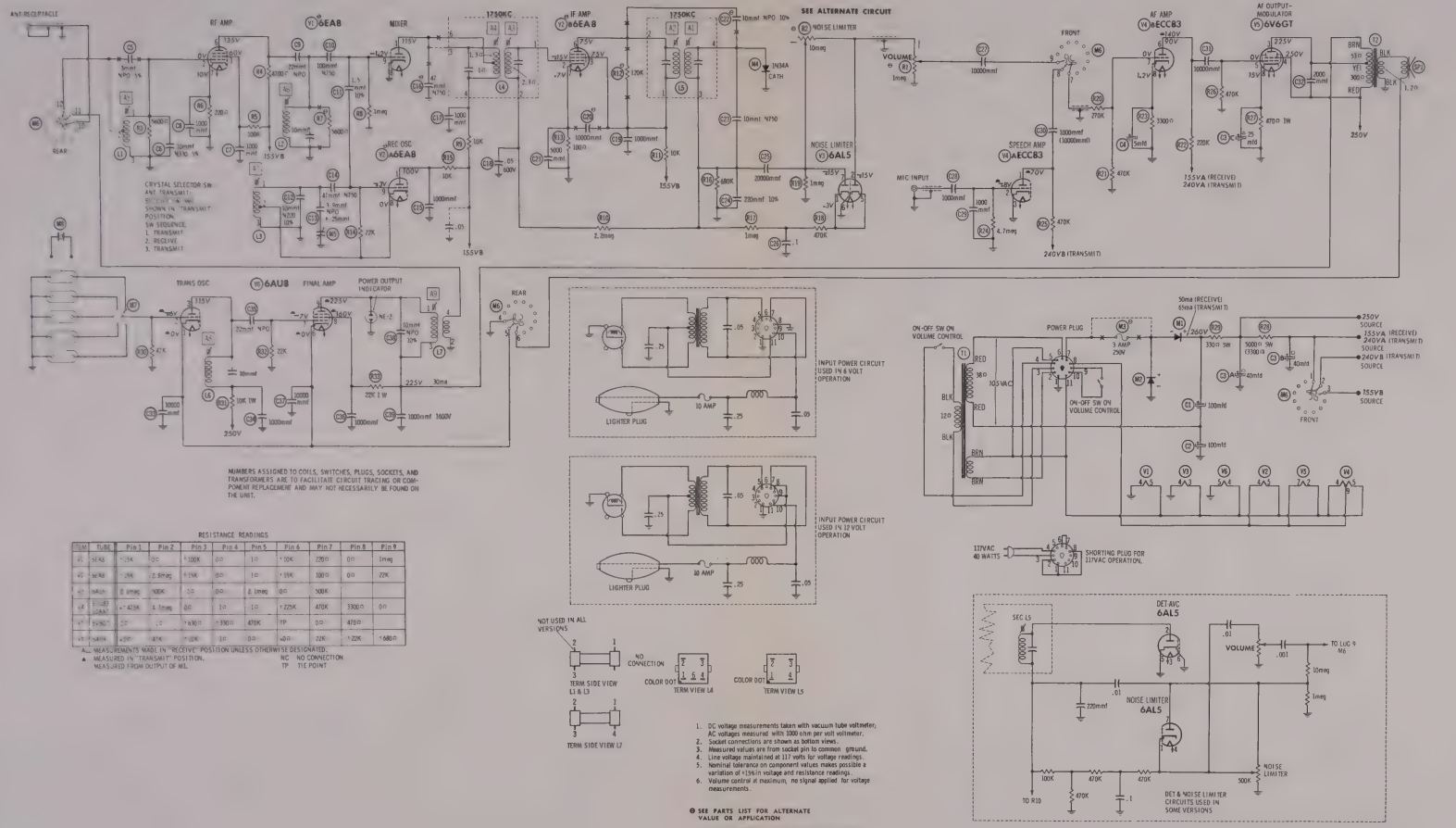
SET 529 FOLDER 15



CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

TUBE	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6EA8	*35K	0Ω	*100K	0Ω	1Ω	*10K	220Ω	0Ω	1meg
V2	6EA8	*35K	2.8meg	*15K	0Ω	1Ω	*35K	100Ω	0Ω	22K
V3	6AL5	∞ meg	500K	1Ω	0Ω	2.1meg	0Ω	500K		
V4	6ECC83	▲*425K	1.1meg	0Ω	1Ω	1Ω	*225K	470K	330Ω	0Ω
V5	6V6GT	0Ω	1Ω	*430Ω	*330Ω	470K	TP	0Ω	470Ω	
V6	6AU8	420Ω	470K	500K	1Ω	0Ω	420Ω	22K	*22K	*680Ω

A.C. MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
MEASURED FROM OUTPUT OF MIL.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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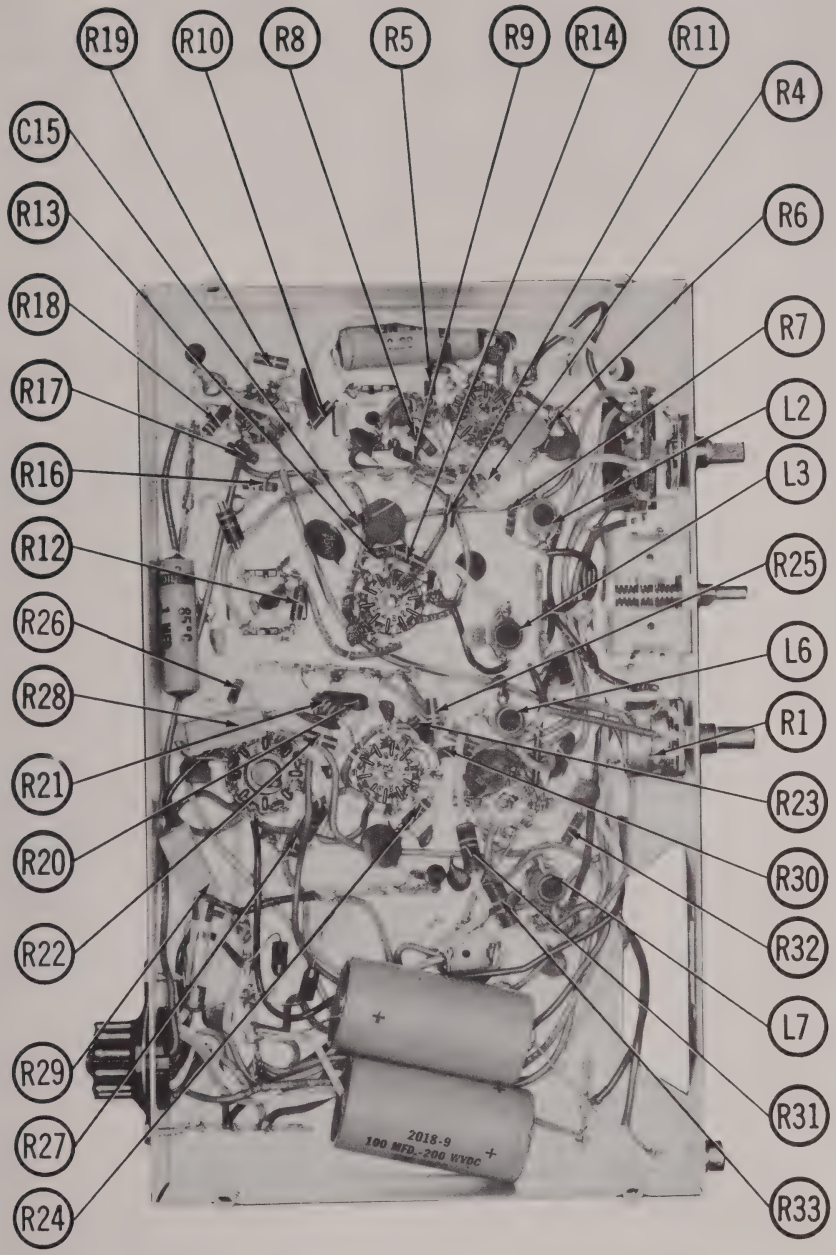
U.S.L. MODEL TR-800



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.

SET 529 FOLDER 15

ALIGNMENT INSTRUCTIONS

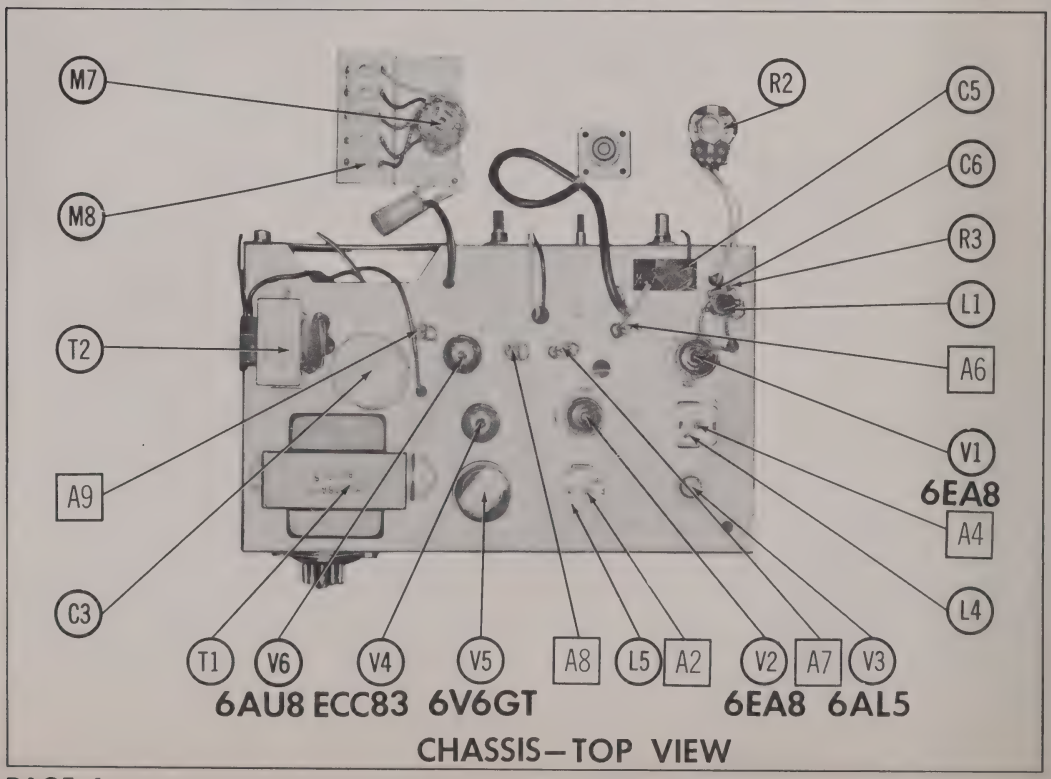
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Noise Limiter Control "OFF". Suggested Alignment Tools: A1 thru A4...GENERAL CEMENT #5097, 8727 WALSCO #2515 A5 thru A9..GENERAL CEMENT #8721, 8722 WALSCO #2519

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 9 (grid) of Mixer. Low side to chassis.	1750KC (400∿ Mod.)	———	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Connect output of generator having 52Ω output impedance to antenna input receptacle.	27.065MC	———	Across voice coil.	A5, A6, A7	Preset A7 three-fourth of the way out. Adjust A5, A6 & A7 for maximum output. A7 has 2 peaks. The image frequency is the bottom or lower peak. Use the upper peak.
3.	Check dial calibration on channels 1, 9 and 22. If necessary, retouch A7.					

TRANSMITTER ADJUSTMENT

	Insert a 52Ω non-inductior dummy load (minimum 3 watt dissipation) into the antenna socket. Connect a suitable RF meter across the load.
1.	Switch to transmit. Adjust A8 and A9 for maximum output.
2.	Switch from receive to transmit several times while slowly turning A8 counterclockwise ½ turn at a time for maximum output.
3.	Carefully turn A8 an additional 1½ turns counterclockwise for maximum oscillation stability.
4.	Readjust A9 for maximum output.



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	◆ GENERAL ELECTRIC ◆			RAYTHEON ◆ SYLVANIA ◆	
V1	RF Amp.-Mixer	6EA8 (6U8A) *	V4	AF Amp.-Speech Amp.	ECC83/12AX7
V2	Rec. Osc.-IF Amp.	6EA8 (6U8A) *	V5	AF Output-Modulator	6V6GT
V3	Noise Limiter	6AL5	V6	Trans. Osc.-Final Amp.	6AU8

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA U.S.L. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	100	200		PRS1595	BR10035	TC1265	TD-100-200	TVAS-1445 *	
C2	100	200		PRS1595	BR10035	TC1265	TD-100-200	TVAS-1445*	
C3A	▲40	350		AFH3-111	C0870	FP367.5	TMT-3367	TVL-3754.5	
B	■40	350							
C	▲25	25							
C4	5	10		PTT-10005	NLW5-15	TT12X5	MLV5-12	TE-1127	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	3 NPO 5%		NPO-SI 3.3	TCZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C6	10 N330 5%			TCA-10		*		10TCS-Q33
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	22 NPO		NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C10	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C11	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-510	10TCC-V15
C12	10 N220 10%					*		10TCR-Q10
C13	3.9 NPO +.25mmf				C10V4C			10TCC-V39
C14	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C15	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	47 N750	Note 1	N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C17	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C18	.05 600V		P688N-05	DD-503	CUB685	6DP-3-503	GEM-615	6TM-S50
C19	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	10 NPO 10%	Note 1	NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C23	10 N750		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C24	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C25	20000		BPD-01	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C26	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C29	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	1000	(10000) †	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	22 NPO		NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C36	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C39	1000 1600V		DAC-001	DD30-102	HVB20D1	3CCD-102	2HV-210	BL-D10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Alternate Value.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA U.S.L. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 meg	½	V-329-3	B-70-S	A47-1meg-Z	Q13-137	U-53	Volume (Note 1)
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-20	76-2	US-27	Power Off-On
R2	10meg	½	V-330-1					Noise Limiter (Note 2)

Note 1. Some versions may use 2meg in this application.
Note 2. Some versions may use 500K in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	5600Ω			
R4	4700Ω			
R5	100K			
R6	220Ω			
R7	5600Ω			Note 1
R8	1meg			
R9	10K			
R10	2.2meg			
R11	10K			
R12	120K			Note 1
R13	100Ω			
R14	22K			
R15	10K			
R16	680K			
R17	1meg			
R18	470K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R19	1meg			
R20	270K			
R21	470K			
R22	220K			
R23	3300Ω			
R24	4.7meg			
R25	470K			
R26	470K			
R27	470Ω 1W			
R28	5000Ω 5W	PW5-5000	5W-SQ-5000	(3300Ω) *
R29	330Ω 5W	PW5-330	5W-SQ-330	
R30	47K			
R31	10K 1W			
R32	22K			
R33	22K 1W			

* Alternate Value.
Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA U.S.L. PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Ant.		TV-118	6171-A	RTC-8609	T216	* Remove Trap
L2	RF		TV-118	6171-A	RTC-8609	T216	
L3	Osc.						
L4	Input IF						
L5	Output IF						
L6	Transmitter Osc.		TV-118	6171-A	RTC-8609	T216	
L7	Transmitter Output		TV-141 *	6253 *	RTC-8571 *	T227 *	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA U.S.L. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ⓐ .38A	105V ⓐ .200A (AC)	6.3V ⓐ 2.2A	PT-178A-2					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	U. S. L. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6500Ω Tap@ 4800Ω	3-4Ω	T-179-2					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	U. S. L. PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	7896144A (S7171)	4A1	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	U. S. L. PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.065A		1N1763	40H	SR500	Silicon Type
M2	.065A		1N1763	40H	SR500	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			U. S. L. PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG	3A 250V P/T	(Note 1)		318003 (3A 250V P/T)		GJV 3	

Note 1. Not used in some versions.

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		U. S. L. PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M4	1N34A			1N34A	1N34A	AVC Diode (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	U. S. L. PART No.	NOTES
M5	Tuning Cap.		Antenna, Transmit-Receive-Transmit, (Rotary Type)
M6	Switch		
M7	Switch		Crystal Selector (Rotary Type)
M8	Crystal		

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1785-B (6 Ft. Length)
1725-K (7½ Ft. Length)

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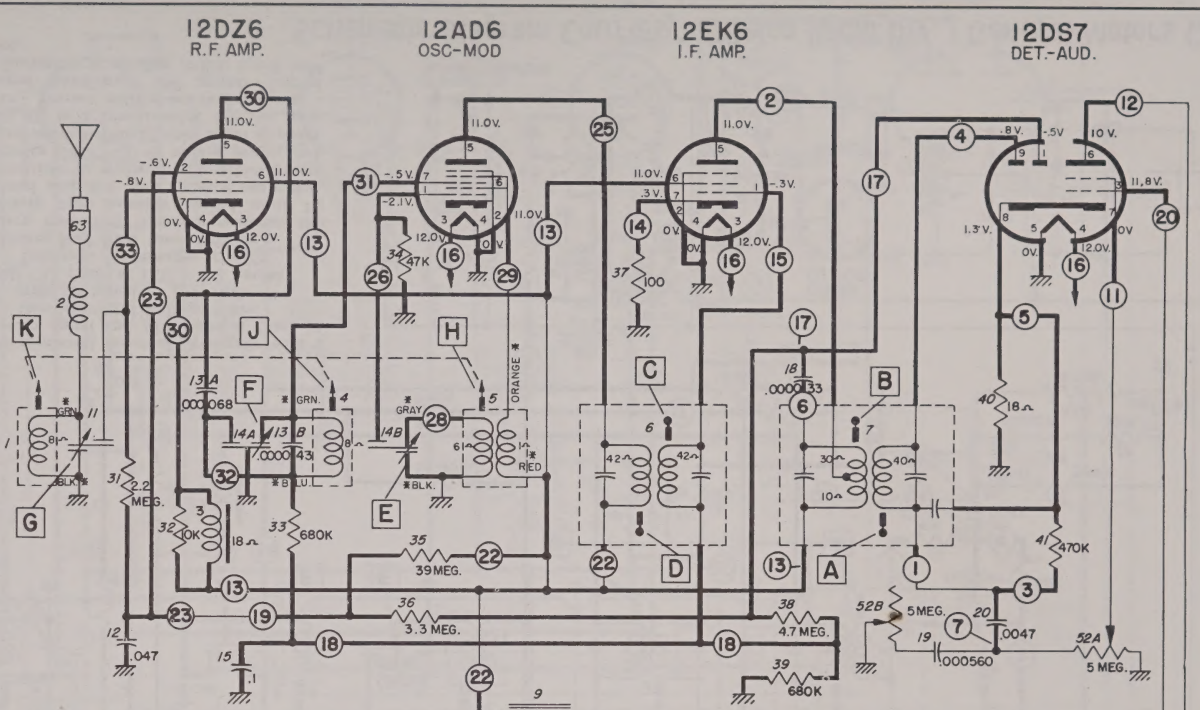


VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM - NO SIGNAL AND 12.0 VOLTS AT ILLUS. 21.

OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.

TOTAL "A" DRAIN AT 12V. - 1.5 AMPS.

TOLERANCE ON VOLTAGES ± 10%

*- INDICATES LEAD FROM TUNER COIL ASS'Y.

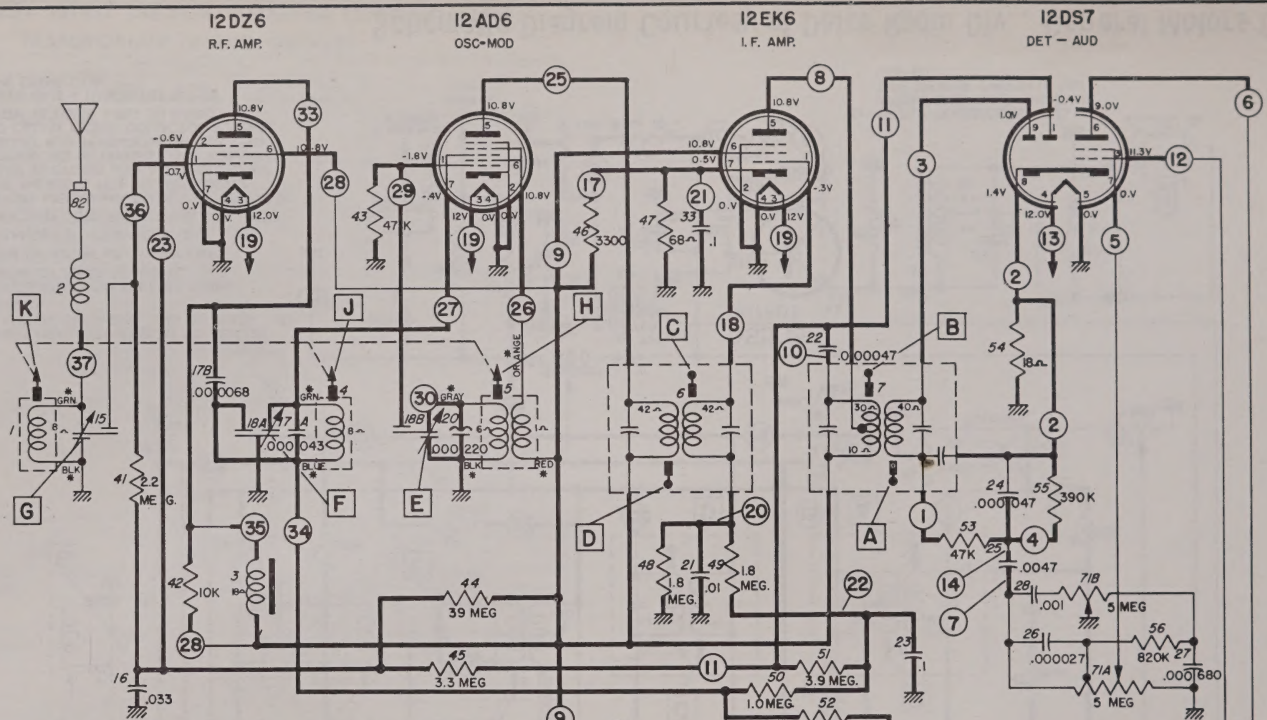
**- BEFORE MEASURING TRANSISTOR VOLTAGES THE SHORTING TYPE SPEAKER SOCKET MUST BE OPENED AND A 4 OHM SPEAKER CONNECTED. IF TRANSISTOR IS REPLACED, ADJUST BIAS POTENTIOMETER (ILLUS. 51) TO OBTAIN PROPER COLLECTOR VOLTAGE WITH 12 VOLTS INPUT TO RADIO.

+- ILLUS. 44 IS A FUSE RESISTOR FOR THE TRANSISTOR.

⊖- OUTPUT TRANSFORMER WILL APPEAR SHORTED IF SHORTING TYPE SPEAKER SWITCH IS NOT OPENED.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

CHEVROLET MODEL 988414



Voltages measured terminal to chassis with a VTVM—No signal and 12.0 volts at Illus. 34 Oscillator grid voltage taken with set tuned to 1000 KC.

Total "A" drain at 12V. - 2.2 amps.

Tolerance on voltages ± 10%

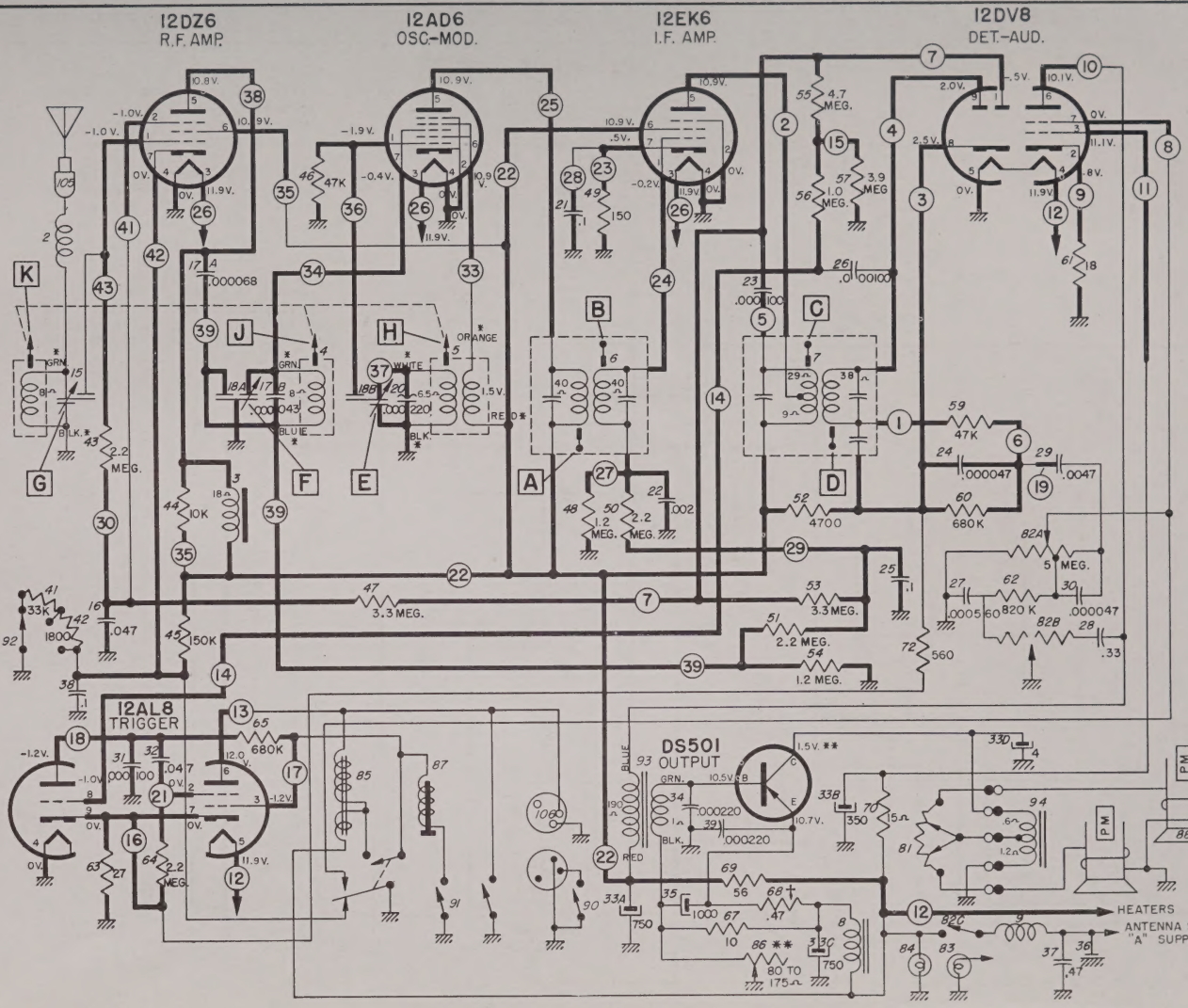
°—Indicates lead from tuner coil ass'y.

°°—Before measuring transistor voltages, the shorting type speaker socket must be opened and a 4 ohm speaker connected, if transistor is replaced, adjust bias potentiometer (Illus. 73) to obtain proper collector voltage with 12 volts input to radio.

†—Illus. 60 is a fuse resistor for the transistor. Service with exact replacement.

⊖—Output transformer will appear shorted if shorting type speaker switch is not held open.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

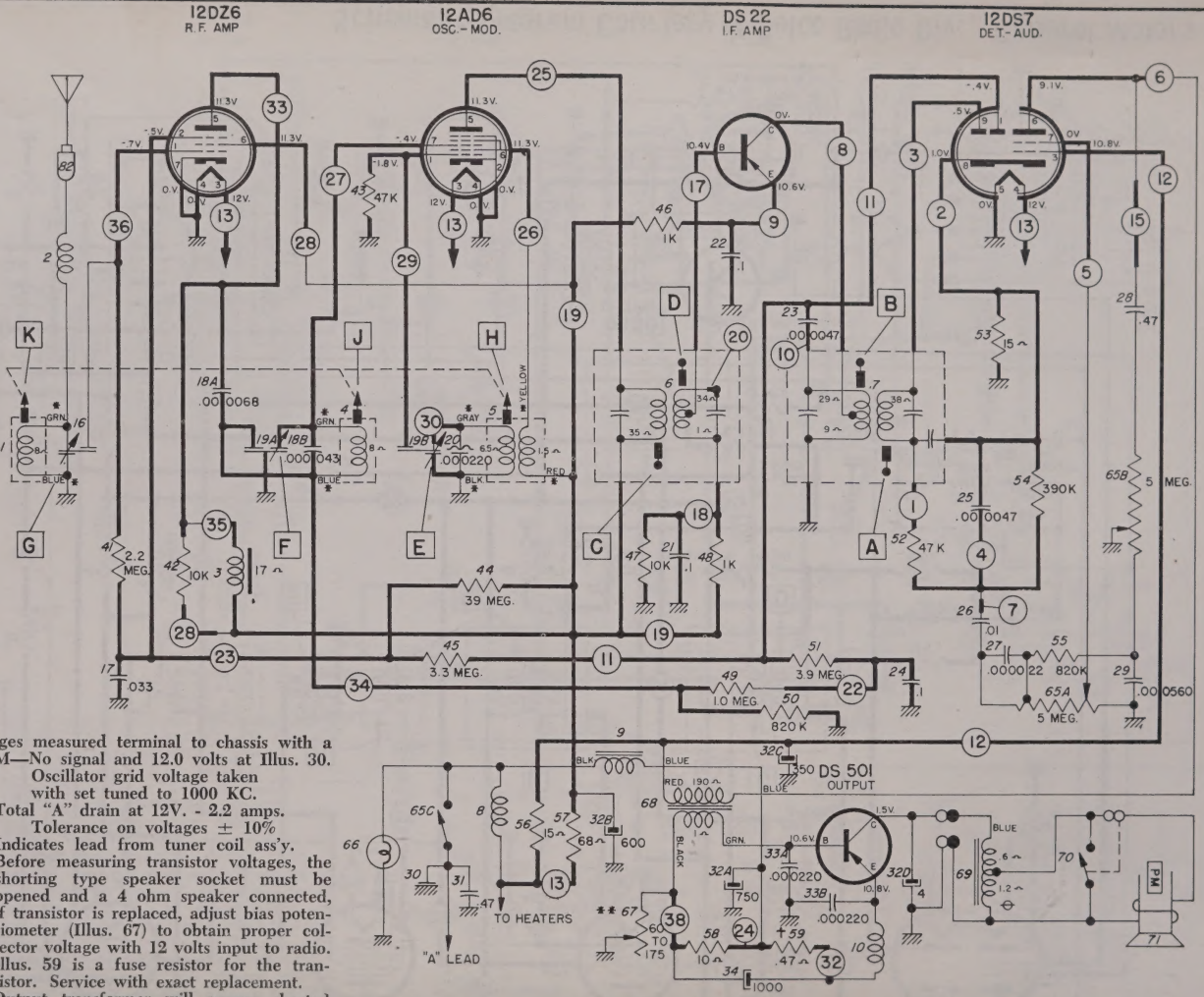


CADILLAC MODEL 7276605

IF RADIO IS POWERED BY BATTERY ELIMINATOR, USE 16 VOLTS FOR PROPER SOLENOID ACTION.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

BUICK MODEL 980134



Voltages measured terminal to chassis with a VTVM—No signal and 12.0 volts at Illus. 30. Oscillator grid voltage taken with set tuned to 1000 KC.
Total "A" drain at 12V. - 2.2 amps.
Tolerance on voltages ± 10%

*—Indicates lead from tuner coil ass'y.

**—Before measuring transistor voltages, the shorting type speaker socket must be opened and a 4 ohm speaker connected, if transistor is replaced, adjust bias potentiometer (Illus. 67) to obtain proper collector voltage with 12 volts input to radio.

†—Illus. 59 is a fuse resistor for the transistor. Service with exact replacement.

⊖—Output transformer will appear shorted if shorting type speaker switch is not held open.

Output transformer is mounted on speaker. Do not connect leads from radio directly to a speaker only.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.